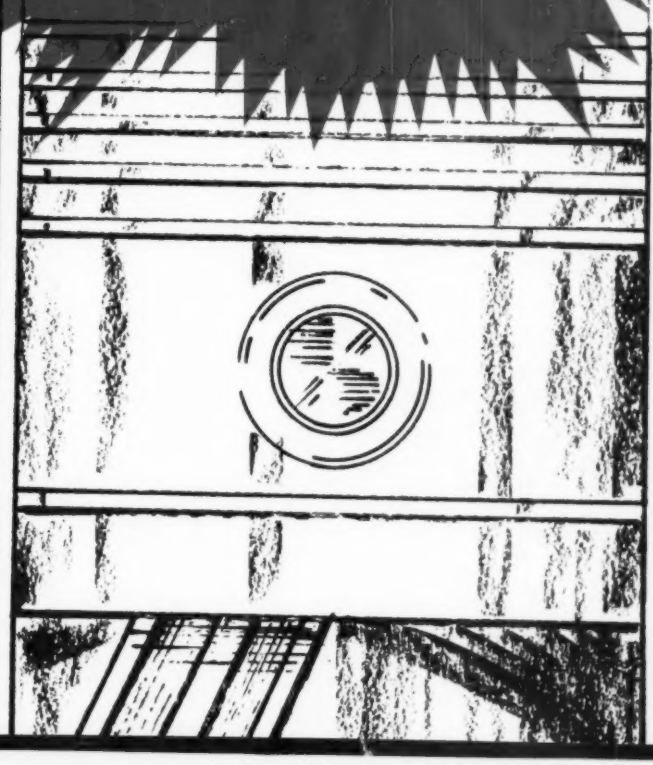
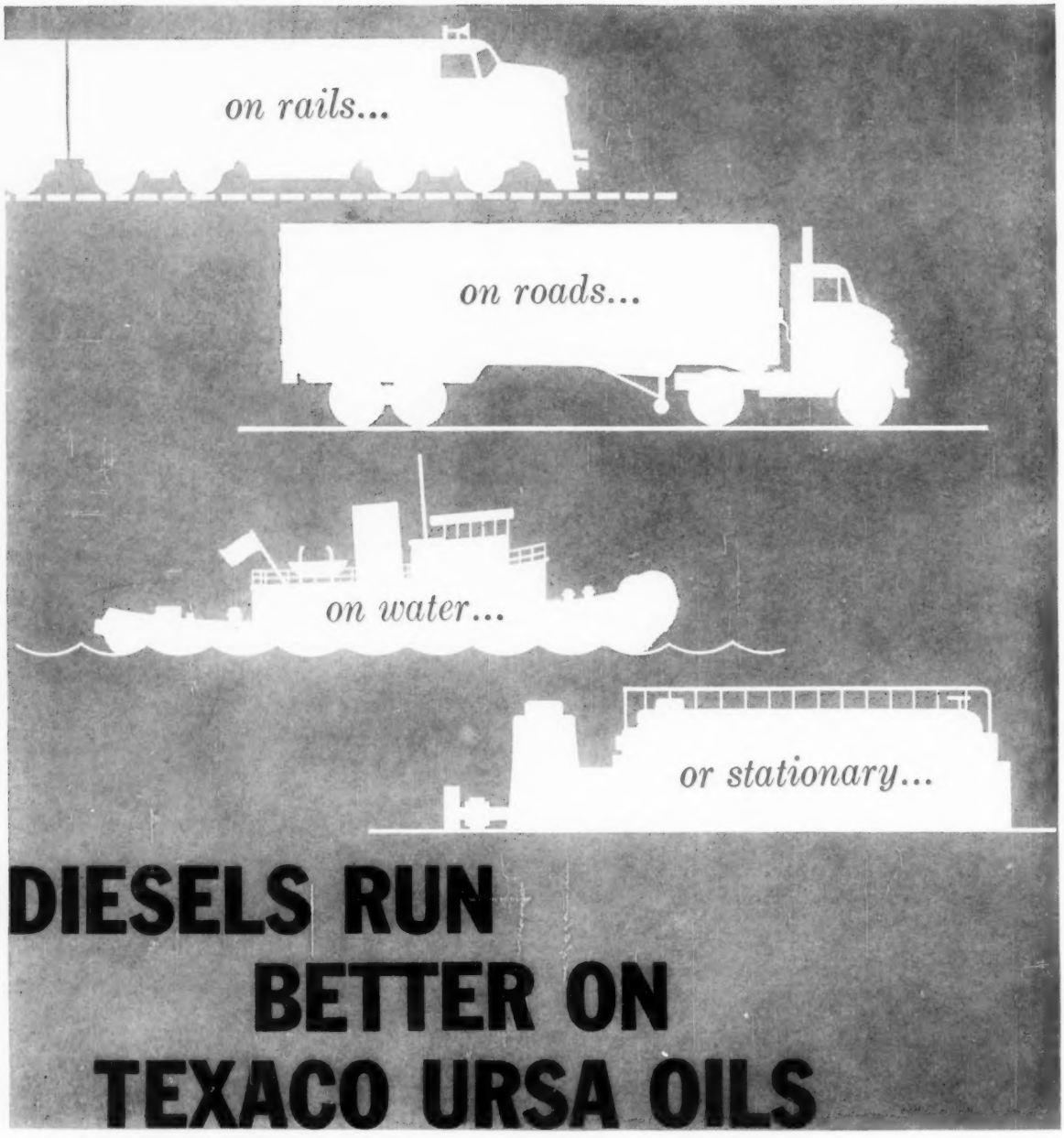
diesel power

January 1960

sales effort means business





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Rings stay free, engines stay clean when they're Texaco lubricated. You get the full compression needed for complete combustion. Your fuel consumption goes down, parts life goes up, maintenance costs are lower.

There is a complete line of Texaco Ursa Oils to meet the exact needs of every type and size of diesel. Your Texaco Lubrication Engineer will gladly help you make the proper selection.

Just call the nearest of the more than 2,300 Texaco Distributing Plants or write: Texaco Inc., 135 East 42nd Street, New York 17, N.Y.

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A SET OF MATCHED IRONS

to improve Diesel and Gas Engine Performance

Like a golfer's set of matched clubs, each piston ring in a PEDRICK ENGINEERED SET is picked for its special ability to do its particular job more efficiently than any other ring. Consequently, PEDRICK ENGINEERED SETS are best able to meet the *individual* requirements of different engines. From top piston groove to bottom, PEDRICK RINGS deliver complete blow-by control, maximum lubrications with minimum oil waste, a more perfect seal for higher compression and longer life *plus* full power for every engine.

Whatever your requirements . . . engineered sets or single rings . . . you get more efficient performance when you specify PEDRICK PISTON RINGS. Engineering service is available to help you with special problems. Write, wire or phone: WILKENING MANUFACTURING CO., Philadelphia 42, SAratoga 9-3770.

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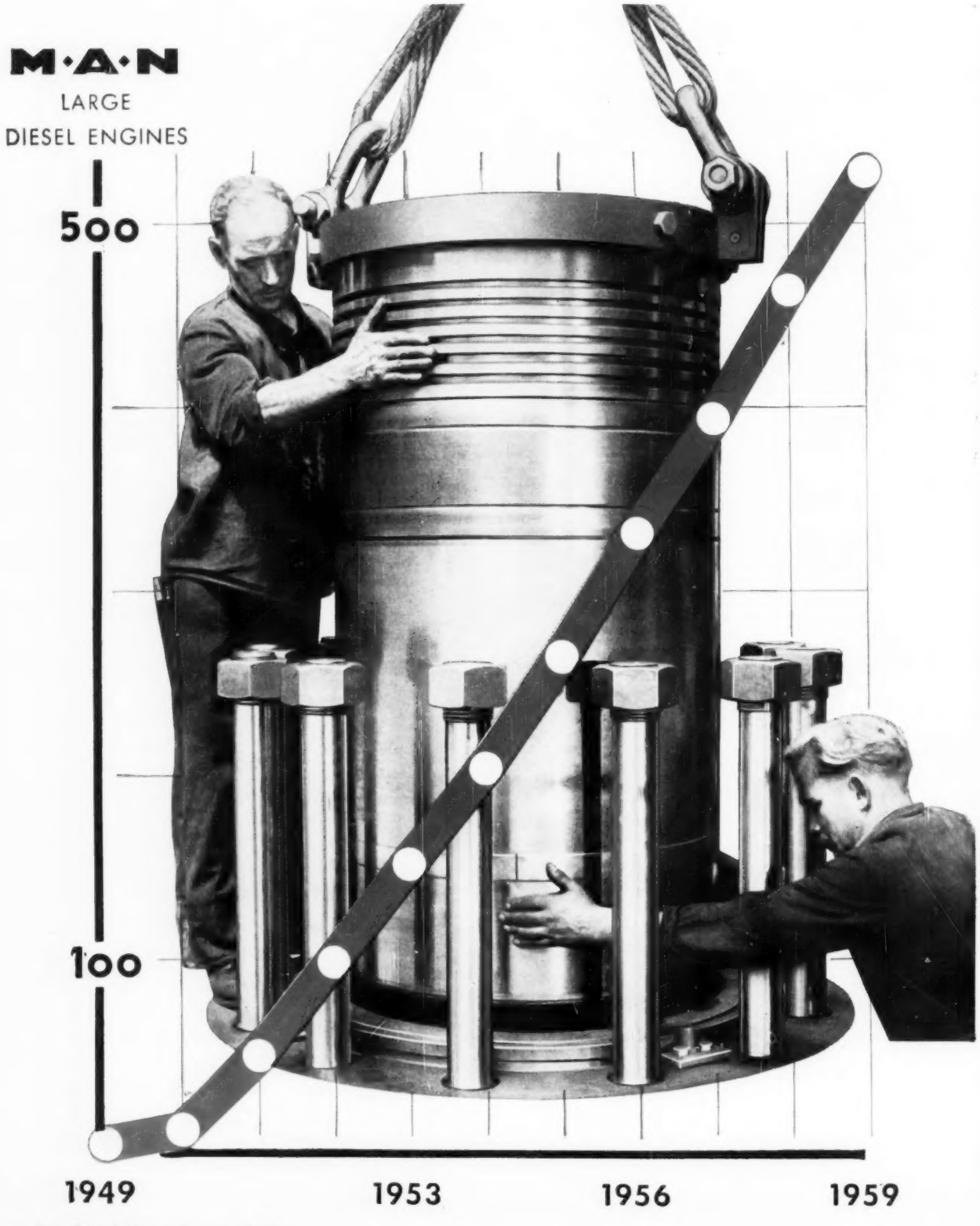
M·A·N
LARGE
DIESEL ENGINES
500
100
1949
1953
1956
1959

M·A·N

From the end of 1949 to the middle of 1959 five hundred high powered Diesel engines were built in the Augsburg works of M. A. N. Most of them, running for many weeks at a time, ceaselessly night and day, drive ships upon the oceans of the world. Augsburg diesel engines, through their renowned reliability and first-class construction, enjoy an enviable reputation among all seafaring nations. Yet, development does not rest. Today, M. A. N. build engines with 2 000 HP/cylinder output developing 20 000 HP and more. We owe the extraordinary production of 500 high powered Diesel engines in less than 10 years to the industry and skill of our craftsmen and to the confidence placed in our products by our numerous customers throughout the world.

The medal shown above was presented to all workmen and staff of M. A. N. Augsburg works to commemorate completion of the 500th high powered Diesel engine

MASCHINENFABRIK AUGSBURG-NÜRNBERG AG · WERK AUGSBURG

MULTIPLE-TURBOCHARGING UNION PACIFIC DIESELS

AIRESEARCH

is now turbocharging Union Pacific's heavy duty, 2-cycle GP9 diesel with four T3006-01 turbochargers. This application of multiple turbocharger systems on this type of locomotive has already accumulated more than 1.5 million turbocharged miles. Its important advantages are:

- Smaller turbochargers easily installed for retrofit
- Substantially increased engine horsepower at all altitudes
- Lower engine fuel consumption
- Higher air flow through the engine, allowing the use of heavier grade, cheaper fuel
- Cooler engine exhaust
- Engine exhaust free of smoke and sparks
- Turbochargers easier and less costly to maintain

AiResearch is a world leader in the development and production of air-cooled turbochargers and turbocharger controls for all major diesel engine applications. More than 35,000 AiResearch turbochargers now deliver close to 9 million turbocharged horsepower. Your inquiries are invited.

THE GARRETT CORPORATION

AiResearch Industrial Division

9225 South Aviation Blvd., Los Angeles 45, California

DESIGNERS AND MANUFACTURERS OF TURBOCHARGERS AND SPECIALIZED INDUSTRIAL PRODUCTS

editors notes...

You'll want to read about...

What's ahead in 1960? From all the evidence it looks good, in fact, production should top all but that of peak World War II years. Some of the things that are going on, pressures and influences that are shaping the course of the industry are outlined in our "Forecast", starting on Page 20. Emphasis is on major growth areas that should account for the bulk of increased production. Established markets are expected to continue strong and show moderate growth. A lot is going to depend on sales effort . . . imaginative, constructive selling in a highly competitive market is the key. That's why we've devoted so much of this issue to markets and marketing . . .

Product appearance has sale appeal and stands on its own merits. Combine it with the added and important feature of production protection and you've got a good thing going for you. What one fuel injection and governor repair shop is doing along this line is told on Page 31. Simple, effective and something for you to think about . . .

How Chrysler plans to merchandise its Deutz diesel line. Here's an example of the "hard sell" techniques so typical of Detroit, applied to diesel engine sales. And don't forget, the other two of the Big Three are in the diesel business too. Could well be that a new tempo of diesel selling is in the making as this and other aggressive programs get going . . .

You'll want to read about...

Another profile on Today's Diesel Man, starting on Page 36. Here's the key man in today's operation . . . cutting costs by keeping equipment rolling . . . holding down maintenance expense. He's the man you have to sell. He says what he needs to do a job—and gets it . . .

A new variable-pitch fan, automatically adjusting air flow to cooling needs. Even this is a "sell" story, although of a different type. The man with the idea sold it to his bosses, owners of a truck line. The fan then sold itself through savings, went into manufacture, and is now being sold to those "sold" on the idea that such fans can do a better cooling job, cut costs. See Page 39.

All the Departments have been put together with the idea of keeping you up to date . . . with what's new in the industry . . . in products . . . in productive ideas. Also, this month we have a Consolidated Index for 1959.

diesel power

ESTABLISHED IN 1923
JANUARY, 1960 VOL. 38 NO. 1

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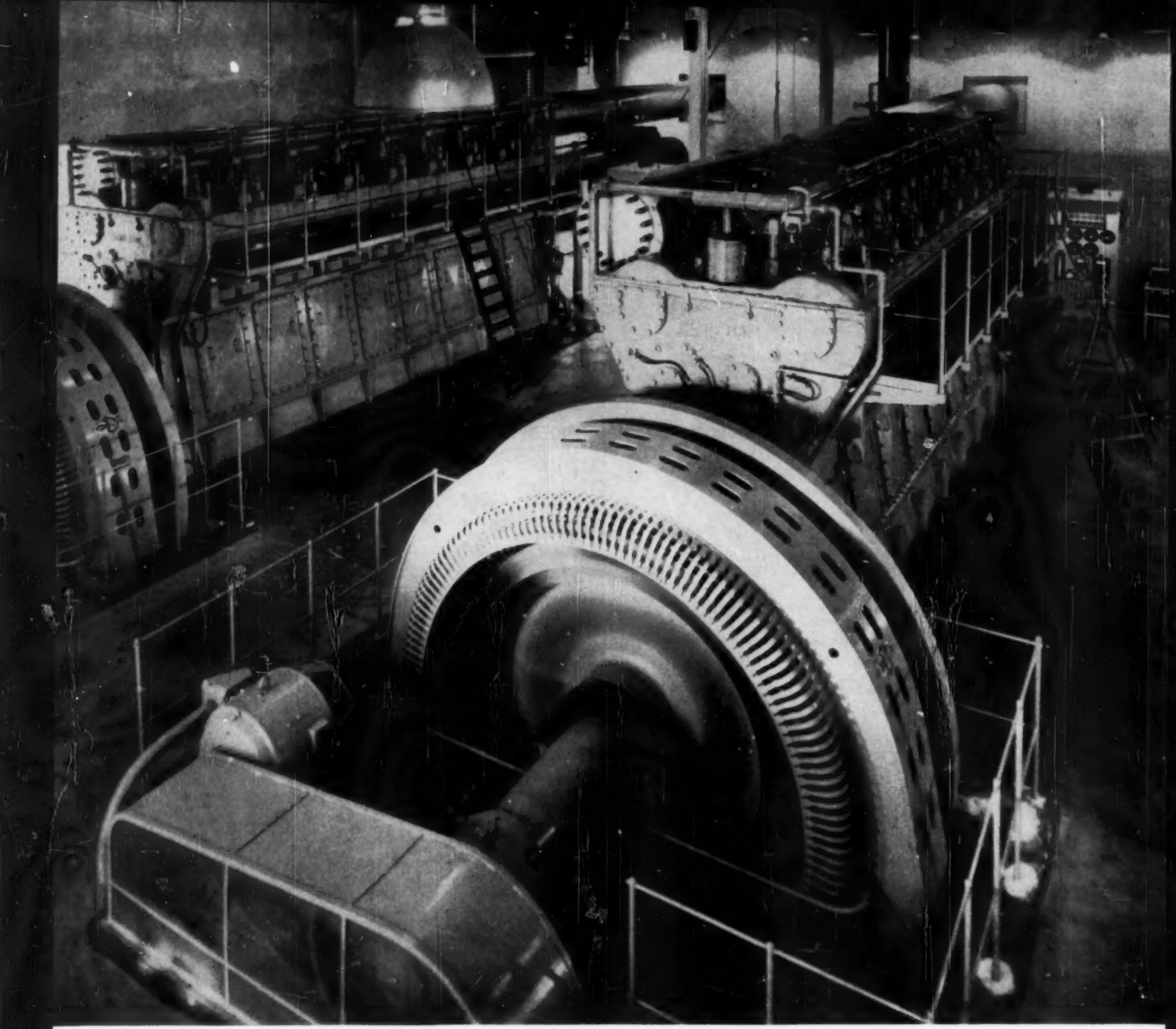

The new Hamilton dual fuel diesel engines shown above were recently put into operation in the Natchitoches, La., power plant. Each produces 3870 net hp at 257 rpm. The generators, rated at 2750 kw each, were built by Electric Machinery.

CONGRATULATIONS, NATCHITOCHES!

The Baldwin-Lima-Hamilton Corporation congratulates the City of Natchitoches on the impressive power plant expansion program it has so successfully undertaken.

These new Hamilton diesel engines, recently delivered, are the largest power units in the Natchitoches plant. We firmly believe their long-term operating efficiency will help provide the citizens in the Natchitoches area with the finest possible electric power at the lowest possible cost.

Our congratulations also to the management of this fine plant on its acquisition of the newest and most reliable generating units available anywhere.

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Diesel engines • Mechanical and hydraulic presses • Can making machinery • Machine tools & general machinery

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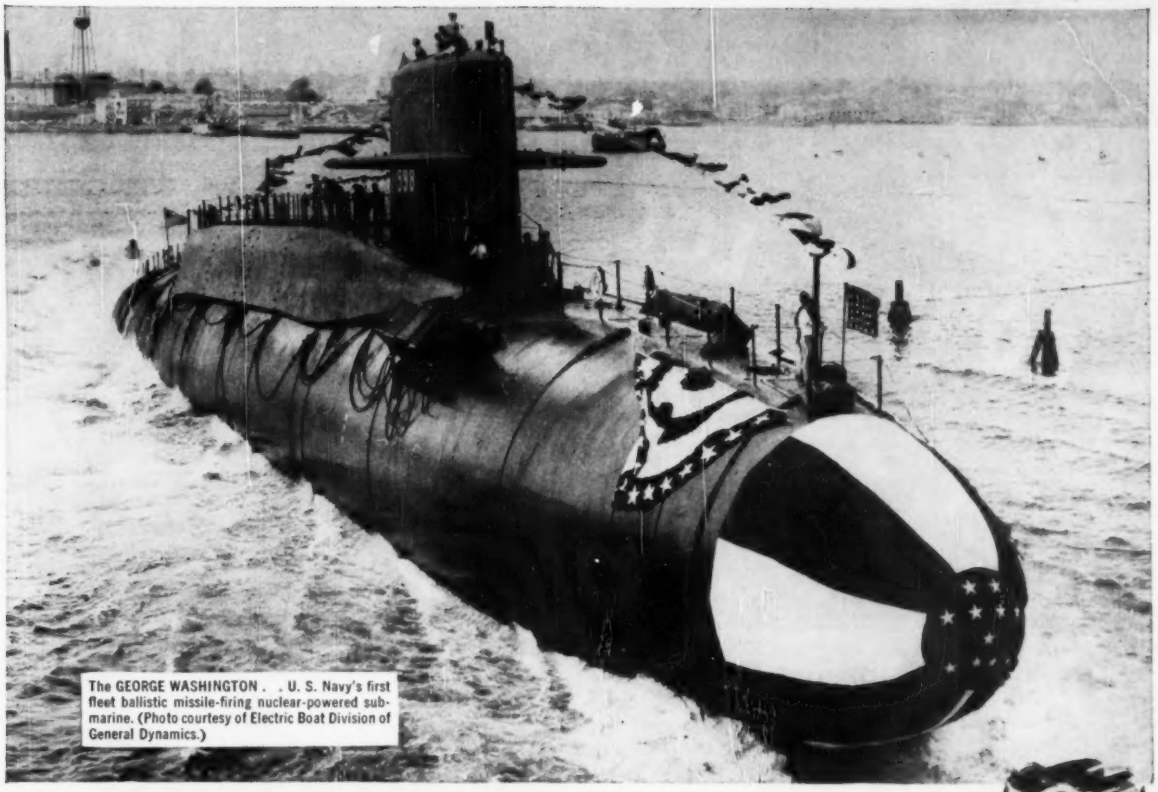
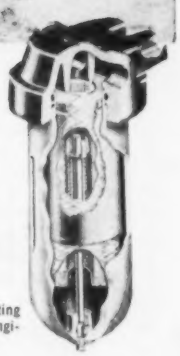


The GEORGE WASHINGTON . . U. S. Navy's first fleet ballistic missile-firing nuclear-powered submarine. (Photo courtesy of Electric Boat Division of General Dynamics.)

EVEN UNDER THE SEA *Fulflo Filters* GUARD PNEUMATIC EQUIPMENT



This standard Fulflo Filter is designed for operating pressures of 4,000 psi. Special models can be engineered for even higher pressures.

The *George Washington* will be the first submarine to fire the Polaris missile from submerged positions at sea. We are proud that Fulflo Filters were selected to protect the pneumatic equipment on this great ship . . . destined to play a vital war deterrent role for the free world.

Fulflo Filters, with patented Honeycomb Filter Tubes, minimize troublesome gumming — remove moisture, oil, microscopic rust, dust, dirt and scale from your air lines. Single-tube models are designed for pressures from 125 to 4,000 psi. Multi-tube models are available for large flow rates or central installations.

CFC Filters also provide micro-clarity for other industrial fluids — liquid chemicals, oils, pharmaceuticals, hydraulic fluids, diesel fluids, plating solutions, water, CO_2 and other gases.

Write for catalog to Department DR.

COMMERCIAL FILTERS CORPORATION
MELROSE 76, MASSACHUSETTS
PLANTS IN MELROSE, MASSACHUSETTS AND LEBANON, INDIANA

MICRO-CLARITY AT MINIMUM COST

Fulflo Filters — *with genuine Honeycomb Filter Tubes for controlled micro-clarity of industrial fluids.*

CFC Filters — *Selective filtration of oils • water-oil separators • magnetic separators • pre-coat filters • coolant clarifiers • automatic tubular conveyors.*

The Piston with "Double Bonded" "Ni-Resist Iron" Top Ring Section

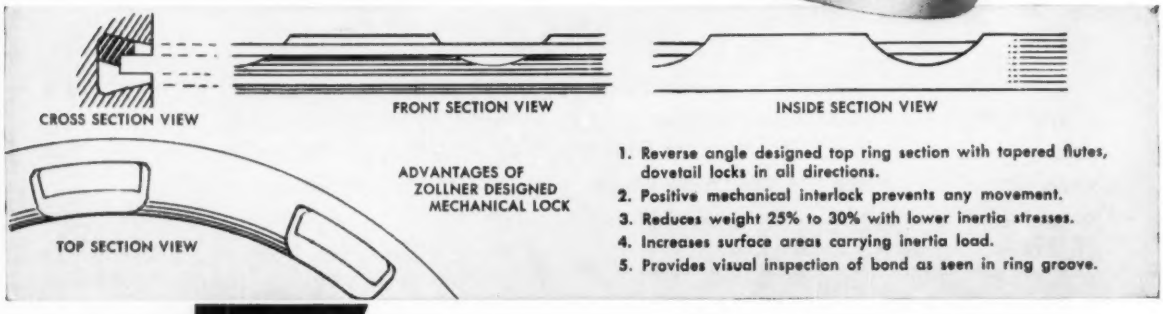
STOPS! RING GROOVE WEAR!

BOND-O-LOC

Exclusively
DOUBLE BONDED
METALLURGICALLY Al-Fin Process
MECHANICALLY Zollner Lock

Keeps Engines Powerful Longer — at Lowest Cost

"A sensational development — the greatest mileage piston we have ever used." Everywhere, engine builders and transport operators enthuse over the performance of Zollner Bond-O-Loc Pistons. Top ring groove wear problems are eliminated by the "Ni-resist" Iron section *permanently* incorporated with the double bond of *both* Al-Fin metallurgic *and the exclusive* Zollner mechanical lock. Separation failure is impossible. For longer piston life and lower maintenance cost, we suggest your immediate test of Bond-O-Loc advantages.



1. Reverse angle designed top ring section with tapered flutes, dovetail locks in all directions.
2. Positive mechanical interlock prevents any movement.
3. Reduces weight 25% to 30% with lower inertia stresses.
4. Increases surface areas carrying inertia load.
5. Provides visual inspection of bond as seen in ring groove.

ADVANCED ENGINEERING

PRECISION PRODUCTION

COOPERATION with Engine Builders

ZOLLNER PISTONS

THE ORIGINAL EQUIPMENT PISTONS

ZOLLNER

ZOLLNER CORPORATION • Fort Wayne, Indiana

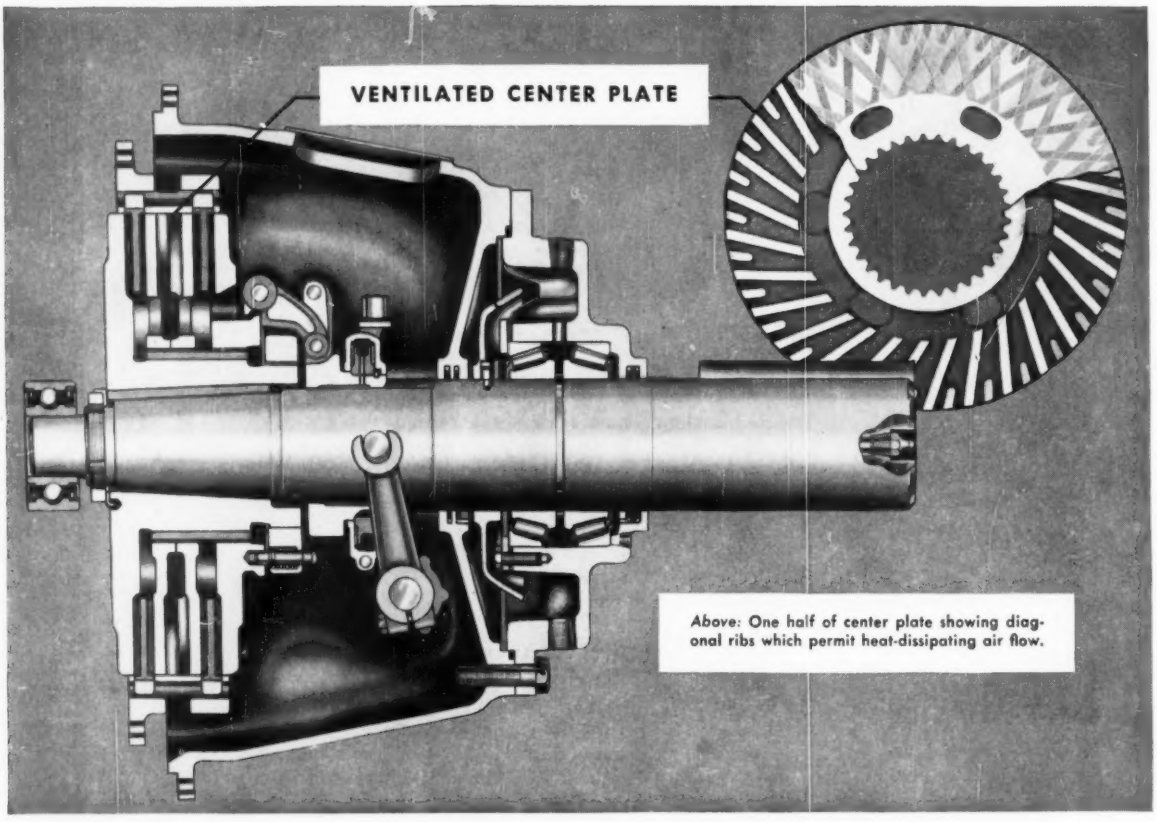
diesel power

editorially speaking

Emphasis for 1960 — HARD SELL

Last year, we were deluged by consultants and analysts, each looking into the diesel market potential for a client. We're sure that they came up with some good data after all their digging. Let's say that one came up with a nice round 50,000-unit figure for annual sales potential in a certain horsepower range. He could be perfectly right—but there's one catch. Nothing in the survey says that his client will get his share or even a small part of this business. Potential is one thing, sales another. Even granting a good product, sales will depend on the effectiveness of merchandising. With a few notable exceptions, diesel merchandising through the years has been fairly routine and often unimaginative. Growing competition and infusions of new blood from other, more dynamic industries are forcing a breakout from the confines of old-line diesel thinking. Yet signs of the past remain and here are a few of the more glaring examples. It should be obvious that you don't sell a $20 accessory item the way you sell one costing in the thousands. For low-cost items you need broad distribution for on-the-spot purchase. Yet some manufacturers with good products are set up as if selling capital goods and are disappointed in sales. If you want to sell to a special group, say truckers, you locate your sales points in active trucking areas, not as some are doing, in gleaming towers in the center of a city. And take distributor selection. In one case we know, two distributors handle the same engine line in a key area. Ordinarily, this would be fine: it's a big territory. But both distributors also handle directly competitive engine lines! And while we're throwing darts, how about some real "sell" advertising. Selling the corporate image or the new plant addition is fine in its place but if you're after sales, get copy with some real interest "hooks". We heard you: what does an Editor know about selling? Brother, that's our business—selling ideas—and selling intangibles is the toughest. Yet we've sold ideas that have turned into products—and profits. Right now we're selling you on the idea that our industry is entering a new and exciting growth period: that competition is going to be tougher and can only be met by imaginative, constructive sales effort. There's business to be had and if it doesn't come ready-made, go make it. We hope, for both of us, that we've made a sale.

B. P. E.



Above: One half of center plate showing diagonal ribs which permit heat-dissipating air flow.

High-energy, high-speed power take-off

features ventilated center plate and oil-lubricated tapered roller bearing

Here is a new PTO—Twin Disc Model IBF-214P—designed for high-speed engines not yet off the drawing board . . . *engines developing 300 to 500 hp at speeds up to 3380 rpm!*

These high speeds are possible because of improved design including the elimination of heavy counterweights, thereby improving overall balance and reducing link and pin stresses.

In addition to its high speed rating, this new unit offers two other important advantages over standard PTO's:

1) The ability to withstand high-energy loads through use of a unique center plate design.

High-energy heat loads create uneven thermal stresses which in turn cause clutch failure by starting cracks in the center plate. This problem is usually traceable to heavy starting loads such as occur in rock crushers, heavily-loaded conveyors and similar equipment.

The center plate on the Model IBF-214P Power Take-Off is ventilated by means of a two-piece design with diagonal ribs cast into each plate. Placed back to back, the ribs cross each other to form only small diamond-shaped contact areas, thus allowing air flow to dissipate excess heat.

2) The ability to operate for six months between lubrication periods thanks to improved throw-out collar design and oil lubrication of the tapered roller bearing.

Oil rather than grease is used for bearing lubrication so as to assure safe operating temperatures at the high speeds for which this unit is designed. The top of the bearing carrier has a small cast cavity which is kept full of oil by a slinger dipping into the sump. A drilled hole from this cavity feeds the bearing to assure constant oil circulation.

A special clutch engagement mechanism cuts throw-out collar wear. Lubrication is needed only twice a year in normal service.

Complete details and specifications on Model IBF-214P are available from our Racine office. Request Bulletin No. 308-B, Supplement A.

TWIN DISC
Friction Clutches and Fluid Drives

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin (Hydraulic Division) Rockford, Illinois

diesel power news section highlights

MINNEAPOLIS-MOLINE PROFITS HIGHEST IN SEVEN YEARS

For the first time in seven years Minneapolis-Moline Company operated at a profit and gained its highest net earnings since 1952. The firm has embarked on a program of diversification, going into electronics and financing. "New products, diversification, accelerated engineering programs, a vigorous marketing organization and rigid expense controls should result in maintaining established financial stability and increasing earnings for 1960," President J. Russell Duncan reports.

YELLOW TRANSIT PLANS MEXICAN OPERATION

Operating now in nine states, Yellow Transit Freight Lines, Inc. expects to expand its operations into Mexico. ICC has already recommended approval of operating authority for foreign traffic between Mexico and the U. S. At present, through traffic is transferred from long haul trucks to local cartage which move it across the border. It is then reloaded on long haul carriers. Move should save much time, even days according to Yellow Transit officials.

NEW PRESIDENT FOR CHRYSLER MARINE AND INDUSTRIAL ENGINE DIVISION

William L. Pringle, former president of Hercules Motors has been appointed president of Chrysler Corporation's Marine and Industrial Engine Division. He succeeds A. S. Hudson. Mr. Pringle, prior to his tenure at Hercules was with the Timken Axle Division of Rockwell-Standard Corporation, Long Manufacturing Division of Borg-Warner Corporation where he was director of sales and then director of engineering.

HERCULES MOTORS

New president and chief executive officer, and a director of the firm is P. O. Peterson, formerly president of Mack Truck, Inc. from 1955 to 1958. During this period Mack's sales doubled. Prior to Mack affiliation he was with Studebaker Corporation. He succeeds William L. Pringle who resigned reportedly to assume direction of Chrysler's Marine and Industrial Engine Division.

LOOKING INTO THE SOLID SIXTIES . . .

Don't miss the 5-page forecast that covers in detail trends you'll want to watch as the new year starts us into the diesel decade . . . here are a few last minute notes gathered here and there . . .

DIVCO

This light truck manufacturer is giving diesels a try . . . one report has it that diesels are now optional in some models . . . a spokesman for Divco says that they have a number of experimental models, some already undergoing user testing.

WHITE MOTOR

As reported previously, White is doing something about tapping the vast light truck market. Through their purchase of Montpelier Manufacturing Co., they will be active in the early part of 1960.

MORE NEWS HIGHLIGHTS FOLLOW ►

NEWS SECTION HIGHLIGHTS . . .

TAXICABS

Diesel developments have been slowed down by testing of the compacts. A spot check shows that mpg these small cars are giving in taxi service isn't getting over 15 . . . diesels are regularly giving 20 mpg and better . . . and then you figure maintenance costs and longevity!

LIGHT VEHICLES

Diesel thinking really seems to have seen the "light" in vehicle application . . . look for a good penetration into many fields in 1960 . . . look for personnel shifts that will bring more automotive thinking into diesel engine companies (well under way already) . . . new applications . . . hard selling . . . a new look to advertising and promotion campaigns. This should be the "decade of the diesel" . . .

AMERICAN DIESEL CORP.

Building a solid market in the taxi field, this American representative of the Perkins firm will soon launch an economy run through the Mid-West and Northeast. There will be Dodge Darts and Plymouths powered by Perkins' diesels visiting taxi fleet owners . . . economy records now on the books will be making many fleet owners sit up and start counting . . .

FROM ABROAD

Volvo has plans to expand its truck sales in the U. S., is bringing in 60 heavy duty trucks for spotting with various fleets. Volvo plans also to set up a service organization for its trucks, appoint a dealer organization and set up a parts depot at Long Island City, N. Y. Swedish manufacturer's line for 1960 will consist of three models ranging from 90 to 185 hp with gross combination ratings of 40,000 to 68,000 lb.

Leyland Motors Ltd. is working out arrangements with Jaguar Cars Inc. to market Leyland's commercial vehicles here. Leyland trucks range from 8,000 to 200,000 lb and are all diesel-powered. Engines rate from 72 hp to 275 hp. Looks like the beginning of an assault by the foreign manufacturers on the U. S. heavy-duty truck market.

GOING ABROAD

Traffic isn't all in one direction . . . Cummins has announced the formation of a new subsidiary in Brazil, Motores Cummins Diesel do Brazil Ltda. with headquartersin Sao Paulo. New firm will soon begin local production of major parts for Cummins diesels.

There have been other American firms in the diesel and related industries going international lately. A late entry is the announcement that Hartford Machine Screw Co. has worked out an arrangement for the manufacture of the RoosaMaster distributor fuel injection pump in France. Control of the new firm called Roto Diesel S. A. will be held jointly by C.A.V. Ltd. in England and D.B.A. Group in France.

AUSTIN TAXICABS IN SERVICE

Both in Detroit and Philadelphia cab fleet owners are trying out Austin diesel taxis. A good-looking vehicle, driver acceptance and passenger reaction seems to be good. Mileage is excellent, both experiments doing about 21 mpg in city traffic. Features that were mentioned were the generous proportions of the interior, short turning radius and comfort.

MORE INDUSTRY NEWS FOLLOWS ►

New light, low-cost Hercules Diesel installed for use in city delivery

Motor Cargo, Inc., of Akron, Ohio, is a major carrier operating more than 2,000 vehicles in a network covering the northeastern part of the country.

They are experimenting with the new Hercules truck diesels, using a 20,000-22,000 pound GVW vehicle powered with the lightweight, low-cost—only $1,400 list price—D-298-H engine. This six-cylinder diesel is rated 115 horsepower at 3,000 RPM and weighs only 850 pounds.

Check these advantages — diesel fuel economy, simple installation, low maintenance costs, low original cost—and you have the reasons Motor Cargo made this move.

Hercules is the first U.S. engine maker to design diesel power plants specifically for light and medium-weight trucks. You don't have to pay high-price or high-weight penalties for diesel economy any more. Specify your next truck with a Hercules diesel, available in models from 50 to 175 horsepower.

If you are about to major-overhaul a gasoline-powered vehicle, call your Hercules distributor for the facts on how you can save with Hercules diesels. Or write Hercules Motors Corp., Canton 2, Ohio.

HERCULES®

HERCULES MOTORS CORPORATION
Canton, Ohio

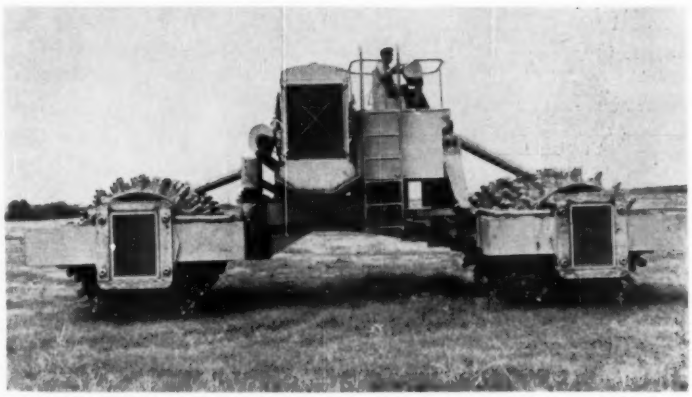
WATCH HERCULES FOR THE "NEW LOOK" IN ENGINES

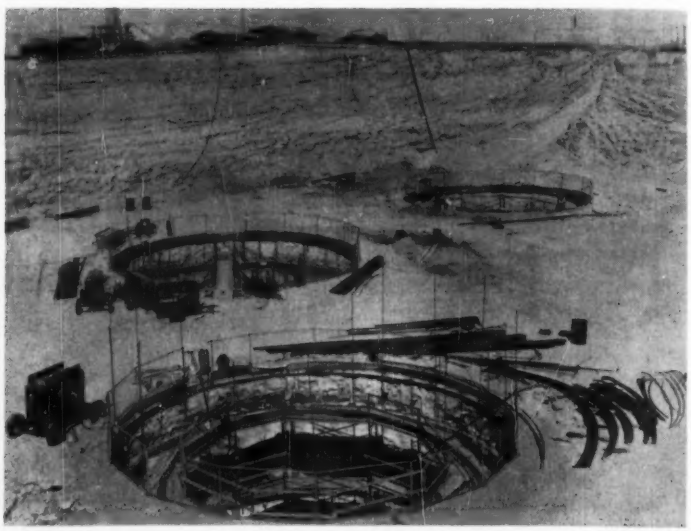
Caterpillar D8 equipped with Hyster D8L

towing winch was borrowed from a nearby logging job to tug this tug. The ocean-going tug, all 81-ft of it, was winched about 100 ft across a sandbar into narrow Siletz channel near Taft, Oregon. COLUMBIA QUEEN had gone aground in heavy fog. Boat went into yard for new rudder—Cat went back to logging.

Push-button 40-ton sheepsfoot roller

introduced by R. G. LeTourneau Inc. promises maximum compaction at lowest cost. M-50-55 Power Packer is powered by a 420-hp GM 12V71 direct coupled to ac and dc generators. Four independently oscillating drums are driven by electric motors. Power Packer will tamp 300 ft per min and travels forward or backward at same speed which means no turning over the fill.





Worthington Corporation will supply

diesel engines and four other categories of mechanical equipment for the first operational Titan ICBM bases now being built near Denver, Colorado. Air Force contracts total $5,000,000. Seen here, front to back fuel storage silo, missile silo and equipment silo. It will take a direct nuclear hit to knock out the Titan's retaliatory ability. Diesel power plays an increasingly important role in our missiles program.

NEWS ABOUT PLACES, PEOPLE AND PLANTS FOLLOWS ►

ASME Elects New President

Walker L. Cisler has been elected president of the American Society of Mechanical Engineers. Mr. Cisler will begin serving at the business meeting on November 30 at the Annual Meeting in Atlantic City. He will serve for a one-year term.

NICAD Batteries to Start Diesels in Reefers

NICAD nickel cadmium alkaline batteries have been chosen for diesel engine starting in mechanically-refrigerated railroad cars.

These 12-v, 62-amp hour batteries were the logical choice for a number of reasons.

First, they can take a beating. Rugged construction, and basic design insure long life in this particularly tough railroad service including considerable "humping" impact.

They seldom need service. Being highly reliable, makes them ideal where perishable goods are being freighted.

With diesels getting a big play in this service, NICAD foresees an expanding market for this type of battery.

American Marc President Kendall Cites Diesel Automobile Market

W. Denis Kendall, American MARC's chief executive, told a meeting of the N. Y. Society of Security Analysts "the economical operation and durability of the diesel made it a natural for taxis and utility trucks and any other conveyance that takes long and constant wear. And it will make the family car last six times longer than it does today."

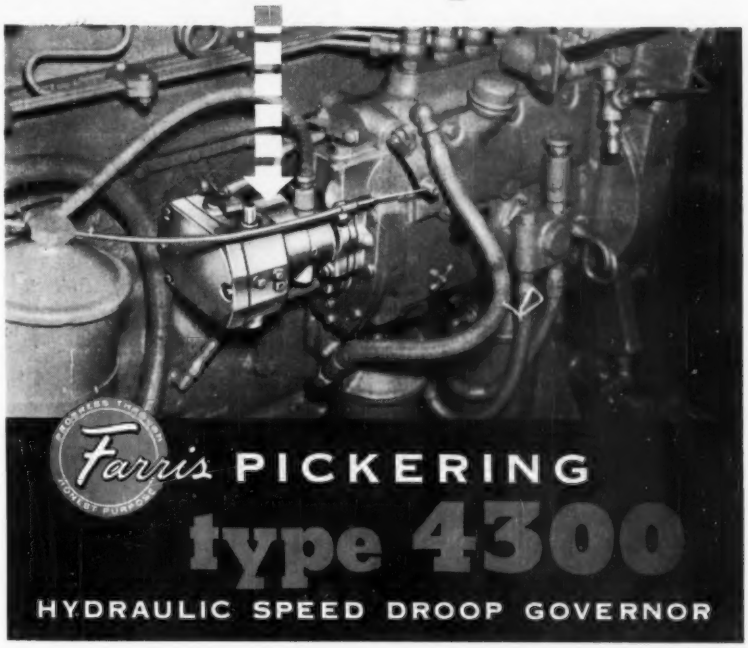
He also reported that his company is developing a diesel in the 35-50 hp range which would first be produced as a marine motor and later for cars.

This engine will weigh about 200 pounds, be of single cylinder, opposed-piston design and be water-cooled. It would, according to Mr. Kendall, have additional application separately and in electric generator sets over a broad range of industry.

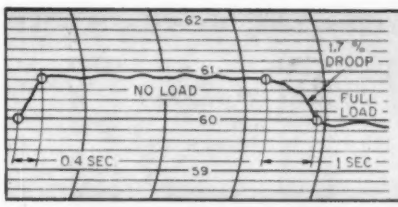
The company would be "reaching for" sales in the fiscal year ending next May 31 of approximately $10 million and a net profit of about 8% or better.

FOR LOW COST, VERSATILE CONTROL—

A New Hydraulic Governor with External Droop Control



Here is the economical, simplified way to control engine speeds PLUS external droop control for paralleling loads. The Type 4300 Farris Pickering governor is ideally suited for diesel engine pump adaptations . . . and it is the only low-cost hydraulic speed droop governor that permits you to put engine generator equipment in parallel with external control. This is required for certain government specifications. It enables you to equalize loads by adjusting droop while engine is running. Pressure medium for Type 4300 governors is ordinary engine oil. Use this compact unit for many purposes—generator sets, engine driven compressors, marine engines, trucks, tractors, arc welders.



Actual load test chart at left shows performance on Bosch type pump. Diesel generator is 3 cycle, 4 cyl., with 7½ KVA self-excited alternator. Note less than one-second response to load change.

SEND FOR BULLETIN FP-1217 for technical data and the name of your nearest distributor.

Precision Speed Controls Since 1862

Farris PICKERING GOVERNOR CO., INC.

400 COMMERCIAL AVE., PALISADES PARK, N. J.

TEXAS PLANT: 5405 CLINTON DR., HOUSTON 20

AFFILIATES: Farris Engineering Corp. • Farris Flexible Valve Corp. • Farris Engineering Ltd., London, England

DEMA Elects Officers for 1960

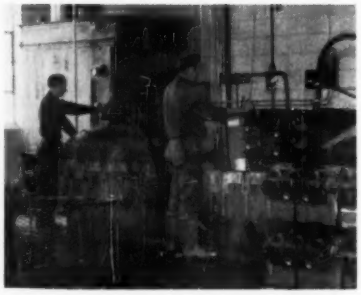
E. L. Miller, president, Cooper-Bessemer, was elected president of the Diesel Engine Manufacturers Association at their annual meeting. Formerly DEMA vice-president and director, he succeeds J. N. McKendrick, chairman of the Board, Clark Bros. Co., DEMA president in 1959.

Vice-presidents elected are George Steven, general manager, Worthington Corp. and William E. Butts, president, General Metals Corporation.

R. H. Morse, Jr. vice-chairman, Fairbanks, Morse & Co. was re-elected treasurer and R. L. Stanley was re-elected as executive secretary.

Vacuum Impregnation Process Saves Porous Castings

No one likes to throw away castings because of microscopically porous wall areas. This is particularly true when these porous areas are uncovered after extensive machining has been done. No need to, according to Prenco Products, Inc., a Michigan firm that has developed a reclamation process and the materials used.



Typical application is to fully-machined block assemblies. These were found to be "leakers" during inspection. In this case, three at a time were loaded in an autoclave. A 29.9-in Hg vacuum is drawn and held for 12 minutes. This opens the casting pores.

Heated sealant is drawn into the autoclave and 100-psi pressure is applied for 12 minutes. Cold water rinsing and application of rust inhibitor completes the process. When cylinder bores or liners are involved, these being critical areas, they are rubbed with oil to provide a degree of "oil-impregnated" surface.

Sounds simple but Prenco Products, doing this work on a custom basis, says that for absolutely uniform seal consistency, the right sealer and rigid quality control is essential. Then they can guarantee results 100%.

Continental's TD 427 Gets Turbocharged by AiResearch

AiResearch model T0704 turbochargers are being installed on Continental's Model TD 427 diesels to compensate for altitude effect on sea level horsepower ratings.

The engine, at 1800 rpm, with all accessories, is rated about 110 bhp. Turbocharged, it will hold at about that figure to an altitude of 10,000 feet. Without the turbocharger, horsepower would be reduced to about 80 bhp at 10,000 ft.

No exact quantity was given as to the number of engines to be turbocharged, but a sizeable order is indicated.

Reader Retires

W. C. Van Kirk, a retired Lieutenant, U. S. Navy has written us re-

HILCO® FULL FLOW FILTERS

FOR MAXIMUM FILTRATION OF DIESEL AND GAS ENGINE LUBRICATING OIL, FUEL OIL AND GAS FUEL . . .

with these features:

- High flow rates
- Low pressure drop
- Choice of filter cartridges
- Large dirt storage area
- All steel welded construction
- In-out pressure gauges
- Quick action cover lifter
- 100 psi standard design pressure
  Higher pressures upon specification
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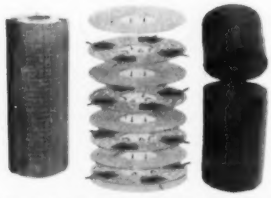

HILCO FILTER CARTRIDGE TYPE FW-718 COMBINATION EXTENDED SURFACE AND DEPTH MICRO FILTRATION

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"F" Series HILCO HYFLOW OIL FILTER

HILCO FULL FLOW FILTERS Available in capacities up to 2000 GPM and Micro Filtration at that . . . Removing Particles 5 Microns and Smaller

• Write to the PIONEERS of Micro Full-Flow FILTRATION

THE HILLIARD CORPORATION
120 WEST FOURTH STREET
ELMIRA, NEW YORK

questing that we cancel his subscription. Now if there is one thing we hate to lose—its a reader. But in this case, we do so willingly, with almost a touch of envy.

Mr. Van Kirk has retired from engineering and has located himself in the heart of some of America's greatest hunting and fishing territory.

According to Mr. Van Kirk DIESEL POWER has helped in over a period of almost twenty years and he very kindly wrote to thank us for our contributions to the field.

Thank you sir, and may we return your good wishes in the form of our hopes that the streams produce only fat trout and the woods an abundance of game. We hate to lose a reader, but certainly you've earned your retirement.

Bacharach 50th Anniversary

Bacharach Industrial Instrument Co., celebrating its 50th Anniversary closed out 1959 with a series of commemorative events. An open house and a tour of their plant on December 29th for local business and community leaders capped the year.

The firm was founded by Herman Bacharach. World War I killed off importation of instruments for industry and Bacharach began to manufacture the instruments here. Growth is indicated by the current capitalization of $650,000 and sales of over $2,000,000 annually.

Bacharach makes an extensive line of test instruments and tools for the diesel industry.

Scholarship Fund for Clarkson's Construction Equipment Distribution Program

Pledges for the scholarship fund, to provide financial aid for students enrolled in the Construction Equipment Distribution Program at Clarkson College, amount to $20,270, a good part of which has already been received.

The program at Clarkson was established to prepare young men for a career in the marketing of construction equipment. It is the first such program of its kind at an accredited college. The program was planned with the assistance of the Associated Equipment Distributors and leads to a Bachelor of Science degree.

(*Continued on page 46*)

2-SECOND DIESEL STARTS IN COLDEST WEATHER WITH QUICK-START

In cold winter weather, when work is tougher, and diesel operating costs go up, starting trouble is *expensive* trouble. QUICK-START solves cold-weather starting problems—safely and economically.

The QUICK-START System operates on a special ether-base mixture, designed to provide that extra "hot boost" that makes the difference in a cold diesel engine. Easily operated by one man, from the driver's seat, QUICK-START is activated by a special choke on the dash. One or two seconds of choking . . . a push on the starter . . . and the engine roars into action, in weather as cold as 0° F.

IN TEMPERATURES AS LOW AS −65°, QUICK-START provides the same safe starting action in only a few seconds longer, saves valuable time, fuel, and battery power.

Adaptable to All Types of Diesel Engines

Trucks • Tractors • Bulldozers
Buses • Mining Equipment
Farm Equipment • Cranes
Earth Movers • Marine Engines

Simple and inexpensive to install, the QUICK-START System requires no special tools or equipment, can be ready for operation in just a few minutes. Fuel tank and valves mount on fire wall, copper tubing is attached to the manifold with a tight brass fitting, choke is clamped to dash—and QUICK-START is ready for immediate use!

SPECIAL DISTRIBUTOR'S STARTING OFFER

Here is an unusual opportunity for distributors in the automotive, construction, and heavy-equipment fields with this popular, fast-selling system. Write, call, or wire Turner Corporation, Sycamore, Illinois, for complete information.

Quick-Start from Turner

TURNER CORPORATION • SYCAMORE, ILLINOIS

Oliver-Studebaker Merger Moving Smoothly

Oliver Chairman A. W. Phelps reports that merger talks with Studebaker-Packard Corp. are proceeding smoothly with decision expected by late February.

Implications of the proposed merger are interesting. Oliver has farm tractors, including diesels, in their line. Studebaker has both the Mercedes-Benz car, truck and bus line as well as some M-B diesel engine models that it is understood to have taken over from Curtiss-Wright.

P & H Reports Progress

Harnischfeger's P & H Diesel Division reports that in the past year it has strengthened its market position, particularly in the automotive field. This is attributed to introduction of the highly-refined Model H engine developed especially for the heavy-duty trucking industry. Light-weight, performance and servicability features of the "H" design will be extended to the industrial and marine line.

Their new vee-type high-rpm, loop-scavenged aluminum engine is now undergoing extensive testing. Also, research has been initiated on other types of high-horsepower vee-type engines, all aimed at rounding out the product line.

Cummins Canadian Distributors Meet

Cummins plant in Shotts, Lanarkshire, Scotland was the scene of a sales and service conference for Cummins Engine Company's Canadian distributors. Further meetings were also held at Cummins London sales office. H and NH diesels in 132 to 335-bhp range are built in Scotland for a wide variety of applications.

100th White Diesel Sold By Arizona Distributor

William F. Burrows at right, congratulates Robert A. Zeidler, president of Arizona Engine & Pump Co. on the sale of the 100th engine sold by the Phoenix distributor. Also shown are, from the left, Joseph H. Newton, sales manager White Diesel and Martin H. Miller, assistant to the general manager of White.

Some one-third of these engines have gone to Arizona Public Service Co. to drive pumps for irrigation. Engines were 360-hp, 475-hp and 650-hp models.

NOW... 2 TORQUE Ranges
(to 900 Foot pounds)

both from one
STURTEVANT
TORQUE WRENCH

Now you can do high torque work with a Sturtevant Torque Wrench of normal capacity range—small in size—light in weight—with fine increment markings and moderately priced.

With a new Multi-range, Multi-purpose Adapter you can step up the capacity of your Torque Wrench to a new high range and you can plug in any drive end you want . . . Box wrench, ratchet, drive square for sockets.

All drive end accessories are interchangeable and stock items.

In this way each Sturtevant Torque Wrench effectively equals two complete sets of ordinary single purpose Torque tools.

WIDE CHOICE OF INTERCHANGEABLE DRIVERS

Only Torque wrenches with the Sturtevant patented pivoted handle can be accurate with adapters.

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ADDISON QUALITY ILLINOIS

AVIEX STARTING FLUID

Contractor's Endorsement

"We have used all of the best known starting fluids and have found that Aviex Starting Fluid has eliminated our starting troubles and reduced our maintenance costs. We now use Aviex 12 months a year."

Clayton McCoy, Inc.
Niles, Michigan

—Provides more effective starts per can at sub zero temperatures.

—Sprays 100% pure Ethyl Ether at any temperature which might be encountered in world travel without warming the can before spraying.

—Contains a new type of propellant that does not mix with the starting fluid and will not liquify in cold weather.

KLEER FLAME—
Diesel fuel oil conditioner prevents clogging:

—fuel pump filters
—injection nozzles

Recommended and approved by Nine Diesel Equipment Manufacturers

UNITED STATES AVIEX COMPANY
423 N. 9th St., Niles, Michigan

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GO DIESEL MAINTENANCE COSTS

when you use

LIX

SURFACE CLEANERS

Spray fast-acting LIX on dirty, oily surfaces and see why more and more diesel operators are relying on Lix to cut maintenance costs! Lix **soaks** away the dirt and grease—every bit of it. Clinging grime and ground-in grit disappear quickly . . . without any rubbing or brushing.

Because Lix Diesel Cleaners cut cleaning time to a fraction, they're far more economical than "less expensive" cleaners. There's a Lix Cleaner for every diesel-cleaning job — spray or soak-tank types . . . all harmless to all metals, low in toxicity, not fire hazards.

Write or phone for a DEMONSTRATION . . . without cost or obligation!

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KIENE®

DIESEL

indicator valves

OPERATES AT PRESSURES UP TO 10,000 PSI

Kiene valves have effective gas seal both open and closed without packing or glands. Operate against pressure — will never blow open. Small and rugged — 4¼" in length with only 3¼" circle of space for attachment. Kiene valves give better service under the most severe conditions. Standard indicator plug and wing nut connection.

Furnished with male ½" NPT engine connection. Other threads on order. Adaptations for most diesel locomotive engines.

SEND FOR BULLETIN V-10

KIENE DIESEL ACCESSORIES, INC.
10352 PACIFIC AVE., FRANKLIN PARK, ILLINOIS

A. F. Sheller

C. W. Hahn

Appointments at Waukesha

In addition to his responsibilities as production manager, Clarence W. Hahn's duties have been extended to include supervision of all manufacturing and shop departments. Mr. Hahn has been with Waukesha since 1944.

A. Foster Sheller has been named manufacturing manager. He will supervise and coordinate activities of departments concerned with manufacturing at the Climax plant. Mr. Sheller has been with the firm since 1957. Prior to that he had acted as a management consultant.

Caterpillar Consolidation

Caterpillar Tractor is consolidating domestic sales, parts, service and treasury operations in Peoria. Currently, nineteen men of the firm's Northwest and Southwest divisions are changing headquarters from San Francisco to the Illinois office. Better communication through central location is the goal of the move.

D. B. Wheeler

New Director of Sales Engineering for White Truck

D. Brian Wheeler has been appointed director of sales engineering for the White Truck Division of The White Motor Company. Mr. Wheeler replaces William L. Peterson who is now manager of the White truck sales, parts and service branch in Philadelphia.

Mr. Wheeler is a specialist in stress analysis and has been in charge of this and of all mathematical work for White since 1951.

T. Orchard Lisle Dies

"Tommy" Lisle, well-known journalist and authority in the marine, power and petroleum industries, has passed away. Tommy came from England in 1914 to become editor of THE RUDDER. Soon after, he began a long career in promoting the diesel engine industry as a freelance writer, then as editor of MOTORSHIP (now RIVERS & HARBORS) and later edited OIL ENGINE POWER, former name of this magazine.

Following this he joined in founding WORLD PETROLEUM and was closely associated with several marine and petroleum magazines. Plus service to these industries through his journalism, he was a familiar figure at and one who contributed much to their technical society meetings and other industry functions.

In 1946, Tommy and his son, B. Orchard Lisle, established the OIL FORUM, now INTERNATIONAL OILMAN. He was very active in this undertaking until his retirement in 1956.

Always a fighter and crusader, Tommy lost his final battle to cancer, complicated by a leaking heart.

(*Continued on page* 53)

"Climate for farm equipment sales in 1960 should be much the same as in 1959. Concerning construction machinery, 1959 sales ran continually ahead of the previous year and 1960 should be every bit as good as 1959."—**R. S. Stevenson, President, Allis-Chalmers Manufacturing Company.**

"Construction volume in 1959 registered its greatest annual increase in 10 years, climbing to a total of $73-billion, and prospects are bright for another record-breaking year in 1960"—Associated General Contractors of America.

"Some diesel builders think they've erred in concentrating on heavy trucks. Vehicles of more than 24,000-lb GVW account for only 8% or 9% of the 11.2 million trucks registered. Cummins thinks about 550,000 of the 1 million trucks on the road between 12,000- and 16,000-lb GVW are suitable for repowering with diesels. They're offering engines for trucks from 6,000- to 26,000-lb GVW. International Harvester is installing diesels as original equipment in its 16,000- to 22,500-lb GVW trucks."—**quoted from Business Week.**

"Total intercity ton-miles for all private and for-hire motor carriers are expected to be in the neighborhood of 290-billion for calendar 1959 after having hovered at 260-billion ton miles in 1957 and 1958. Motor carriers are looking forward to further but more moderate improvement during 1960"—Welby M. Frantz, President, American Trucking Association, Inc.

"In five years, 20% of all taxi cabs on the streets will be diesels. There is no other group in which diesel economy and trouble-free long life can be used to better advantage."—**Robert Hunter, General Sales Manager, Detroit Diesel Engine Division, GM.**

"Business in 1960 is expected to set all-time high. Business spending for plant and equipment is expected to be 14% above 1959. About two-thirds of this projected gain is expected to be directed into equipment in line with managements' determination to increase efficiency of its operations"—Dr. Leo Barnes, Economist, Prentice-Hall, Inc.

FORECAST for '60 ... a banner year

Facts, factors and figures that show future shape and direction of the diesel industry. A good year, one of the best ever, is predicted with annual sales up 30% over 1959. It will be a year of hard competition, hard sell, as diesel usage spreads to new areas.

1960 COULD very well be the highest diesel unit production year since the wartime peaks of 1943 and 1944. This time, the growth pattern is projecting from a much sounder base—increased acceptance and solid commercial demand. Why?

A diligent researcher would have a full-time, long-range job trying to track down the national, and even international, influences to arrive at why more people are buying diesels. We'll take a short-cut and say that there is more emphasis on prime-mover power and more people are realizing that diesels will provide this power at least cost.

But this has been true for a number of years. Why the sudden upswing? Again, we'll give a short answer: Mounting economic pressures have emphasized need for lower-cost power and the diesel industry has risen to the challenge.

Of course, these are over-simplifications. Many things have happened both outside and within the industry to justify a predicted increase in yearly diesel engine production of about 30% in 1960. Last year's estimated production of 157,420 engines was low. We failed to appreciate the strength of trends toward increased diesel use and fell short by at least 13,000 units. Too conservative; didn't believe our own information.

So the roots of this growth pattern took hold last year. After a sound start, accelerated growth is to be expected. Let's take a bird's-eye view before we light on any one branch.

Economy—a new way of life . . .

Businesses that can afford the luxury of inefficiency are unique and the exception. The rule is that you run a tight operation or else you become a statistic in Dunn & Bradstreet's report on business failures. Some costs are not controllable so this places emphasis on those that are. One of these is power cost.

Our "Diesel Man" series has made it very evident that management is acutely aware of the importance of direct power costs and the indirect cost of power failure. Hence the diesel gets the nod.

In all our contacts we keep hearing that overall power costs are one of the few controllable items. Costs of labor, equipment, overhead are pretty well set, leaving power costs to determine if you can operate buses without a fare increase, trucks without a rate increase, or whether you make out on that closely-figured road-building or earth-moving job.

Today's emphasis is on machinery, bigger and/or better machines that will produce more per man-hour, stay on the job longer and cost the least per unit of output whether it be kw hr, ton-miles or yd per hr. This is true across the board. And today, when you talk lower power cost, people listen.

Deeper penetration for diesels . . .

Diesel sales are growing both in already-established markets and new phases of them. Take the conventional diesel-generator set. Standby and emergency installations of these units is still a substantial and growing business. Population growth plus increased electrical usage are combining to load up circuits in congested areas. Also, the number of key installations to be protected is growing.

Communication systems are becoming increasingly vital and are being protected against primary power failure. Even data computing systems such as the one used to keep track of ships at sea are protected.

Generator sets have become more sophisticated as new applications require more stringent performance characteristics. It is only a step, although a giant one, from conventional sets to "precise-power" units so commonly used in ground support of military missiles, rockets and jets as well as commercial jets. And improved capability breeds new applications.

Traditional diesel ruggedness, dependability and economy are available in lighter, smaller packages. "Lighter, smaller" is a relative term and applies in all horsepower ranges. In high-horsepower engines it permits a new degree of mobility and has led to a generation of complete turn-key units, skid-mounted, often housed, and always ready to be moved in and put to work. Generating or pumping packages from 1000 to 2600 hp are available.

Diesel "packages" are going down in horsepower too. One example of the effect is seen in the rapidly expanding refrigerated food industry. Diesels have always been a logical prime mover for insurance against power loss in main storage warehouses. But it took the "lighter, smaller" breed of lower-horsepower engines to provide this same insurance during transit.

Today, diesels are doing the job in both reefer cars and truck trailers. Many of the frozen goods moved not only require that a low temperature be maintained but that it be held within narrow limits. Latest order for mechanical refrigeration units from the Pacific Fruit Express Company was for 1500 units. Coincidently, the same number of diesels were ordered by Thermo-King for incorporation in reverse-cycle truck refrigeration units.

Other manufacturers are buying diesels in the 25-40 hp, continuous, class for this application. Here is an area where diesels are moving in on gasoline engines. Power and reliability of the gasoline engines used are not up to the requirements of this service.

Another classic example of diesels taking over is found in the farm tractor field. For years, wheel-type tractors were traditionally gasoline-powered and following trends in the construction equipment industry, crawlers in the larger sizes were diesel-powered. Now, over 34% of wheel-type units are diesel-powered and the percentage is growing. Availability of small, low-horsepower diesels is the key. And this is influencing other fields.

One, beginning to build, is diesel application in light vehicles. Here, we've trailed Europe where economic pressures favoring development and use of small diesels existed earlier. Right now, some of these foreign engines are beginning to fill the vacuum of demand in this country.

Demand for diesel-powered taxis, delivery route vans and similar vehicles is ahead of availability. American manufacturers of light trucks, cabs and chassis have been slow to recognize this demand but this is changing. Also, diesel engine manufacturers have only started to introduce suitable products within the past year or so.

International-Harvester, White, Divco and a few small independent truck builders now have light-vehicle programs going. Hercules, Detroit Diesel, Cummins, Waukesha and Cerlist have actively promoted light-vehicle programs in which their engines can be used. Vehicles in the lighter weight classes will soon be available with diesels installed as original equipment. But, generally, availability has lagged demand.

Proof of this is seen in the extremely active repowering market in which all high-speed engine diesel engine builders are participating to varying degrees. This is going on steadily and accounts for a high percentage of engine sales in this horsepower category. Diesel engine builders that lack chassis-building facilities have tried to push OEM sales but truck builders have been cautious. In those companies with both truck and diesel engine divisions, truck divisions are just now beginning to see the light.

In the meanwhile, the vacuum is filled by repowering, not the ultimate solution, but one means to an end. It is helping build up experience, develop acceptance and to build up volume, most important in reducing unit costs.

The vacuum is also attracting interest from abroad where light diesel-powered vehicles are already in being. Pointing up the existence of this vacuum and some of the thinking on how it might be filled, comments by W. L.

"Truck registration in 1958 showed that in the over 26,000-lb GVW class 43% were diesel-powered, compared with 29% for 1956. Similarly, March 1959 farm tractor deliveries were 34% diesel, [34.6% January-September, Ed.] compared with 26% (or 69,700 units) of total 1958 production"— SAE Journal.

Interstate Highway Program is rolling again with $1.8-billion 1960 fund. New gas tax signed into law promises funding for two years. Then a new method of financing will be found. State Highway Departments are expected to spend totals of $2-billion in 1960 and $2.2-billion in 1961—from government reports.

ESTIMATED DIESEL ENGINE SALES FOR 1960

By applications other than military and including imported engines

		Estimated Engines	Estimated Horsepower
Railroads	Horsepower Range 200-2400 Estimated Average 1200 hp.	1,600	1,920,000 hp.
Highway Transportation	Horsepower Range 120-200 Estimated Average 140 hp.	33,000	4,620,000 hp.
Marine	Horsepower Range 165-4800 Estimated Average 400 hp.	3,200	1,280,000 hp.
Municipal & Utility	Horsepower Range 200-5000 Estimated Average 1000 hp.	1,500	1,500,000 hp.
General Industry	Horsepower Range 60-3600 Estimated Average 100 hp.	29,000	2,900,000 hp.
Petroleum	Horsepower Range 60-2400 Estimated Average 300 hp.	6,000	1,800,000 hp.
Mining	Horsepower Range 60-550 Estimated Average 150 hp.	6,000	900,000 hp.
Construction	Horsepower Range 60-550 Estimated Average 150 hp.	51,000	7,650,000 hp.
Agriculture	Horsepower Range 30-180 Estimated Average 60 hp.	99,000	5,940,000 hp.
TOTALS		230,300	28,510,000

Rothschild, president of Yellow Cab of Los Angeles and San Francisco are of interest.

Speaking at the Annual Convention of the National Association of Taxicab Owners, Mr. Rothschild commented favorably on performance with Mercedes-Benz and Plymouth-Perkins cabs. He also said that he had four small Japanese diesel trucks that were doing a good job. Then on the subject of cabs he said, "Cab manufacturers have been sitting on their hands on this diesel engine business. Cab operators don't want to have to convert their own vehicles, although this is the only way that they can presently get cabs." Then jokingly he added, "The Japanese may get diesel cabs here as standard before Detroit does."

So availability does lag demand and this will be found true not only with taxis but in the whole area of light trucks.

Imported engines have sunk the spurs . . .

Principal competition that American diesel manufacturers face from imports is in the under-100 hp engines. It's easy to brush this off with "How can we compete with their low labor costs?" Nothing is ever said about Perkins' tremendous production volume, the highest in the world, or that the fact that Mercedes-Benz products are not cheap. No, this answer is too easy—too glib.

There's more than lower labor costs involved as these are wholly or for the most part offset by import duties, transportation costs and the considerable outlay necessary to start doing business in this country. We might look behind this tired excuse at the product itself—its design and manufacturing concept, performance and also the volume of its production.

How did foreign engines get a foothold in this country? You can answer this with another question, "How did the imported cars get started over here?" There's a parallel. Economy sedans filled a need for low-cost transportation —a need that Detroit laughed off. Yet now Detroit is "all shook up".

Similarly, most of our diesel builders were thinking in terms of ever upward and onward in horsepowers. Also, early economics did not support the contention of small, light diesels for light-load, short-haul work. In trucks, registration figures show practically all diesels were in the over-26,000 GVW class and 90,000 miles per year was considered a minimum for reasonable payout time. But economics change, often faster than concepts.

Europeans, particularly, were preconditioned to thinking in terms of small diesels. They had seen them come into extensive use as the result of their own economic situations and were perhaps more sensitive than our builders to the fact that similar economic pressures were developing here. They had the small engines and saw the opportunity to sell them.

Petter and Lister-Blackstone have been over here many

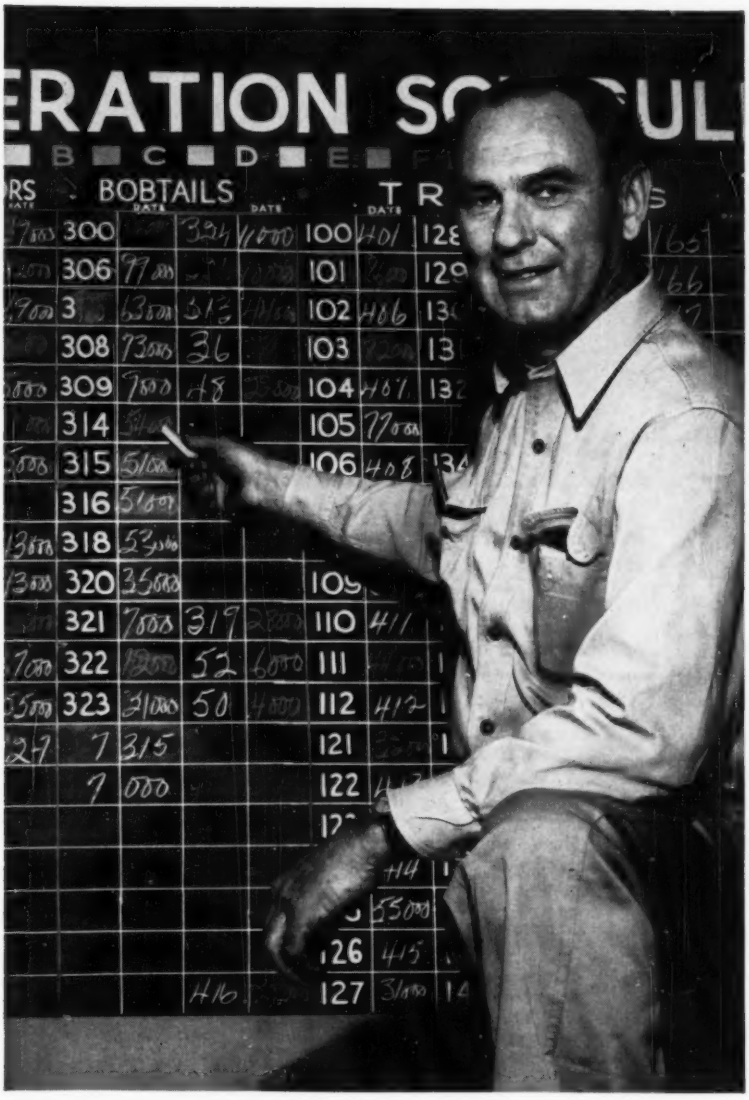
(*Continued on page* 25)

ENGINEER'S FIELD REPORT

PRODUCT **RPM DELO Oil**

FIRM **STERLING TRANSIT CO.**
Montebello, California

350,000 miles on RPM DELO before rebuilding



Using RPM DELO Oil, Sterling Transit Co.'s 15 diesel tractors run an average of 250,000 miles before overhaul. "In fact, we get 350,000 to 400,000 miles out of them before engines are removed for rebuilding," reports Maintenance Manager Bill Schuster (above). "Regular oil changes are an important part of our preventive maintenance program. This color-coded chart indicates the mileage and condition of any unit in our 82-truck fleet...and these records show that RPM DELO Oil is doing a good job."

800-mile round trip between Oakland and Los Angeles is regular run for firm's big Kenworths and Internationals. Mr. Schuster makes frequent dipstick checks (above), reports make-up RPM DELO Oil for trip averages only 5 quarts. Older trucks use cleanable filters; newer units, replaceable cartridges. All use RPM DELO Oil exclusively.

Why RPM DELO Oils reduce wear—prolong engine life

- Oil stays on engine parts—hot or cold, running or idle
- Anti-oxidant resists lacquer formation
- Detergent keeps parts clean
- Special compounds prevent corrosion of bearing metals
- Inhibitor resists crankcase foaming.

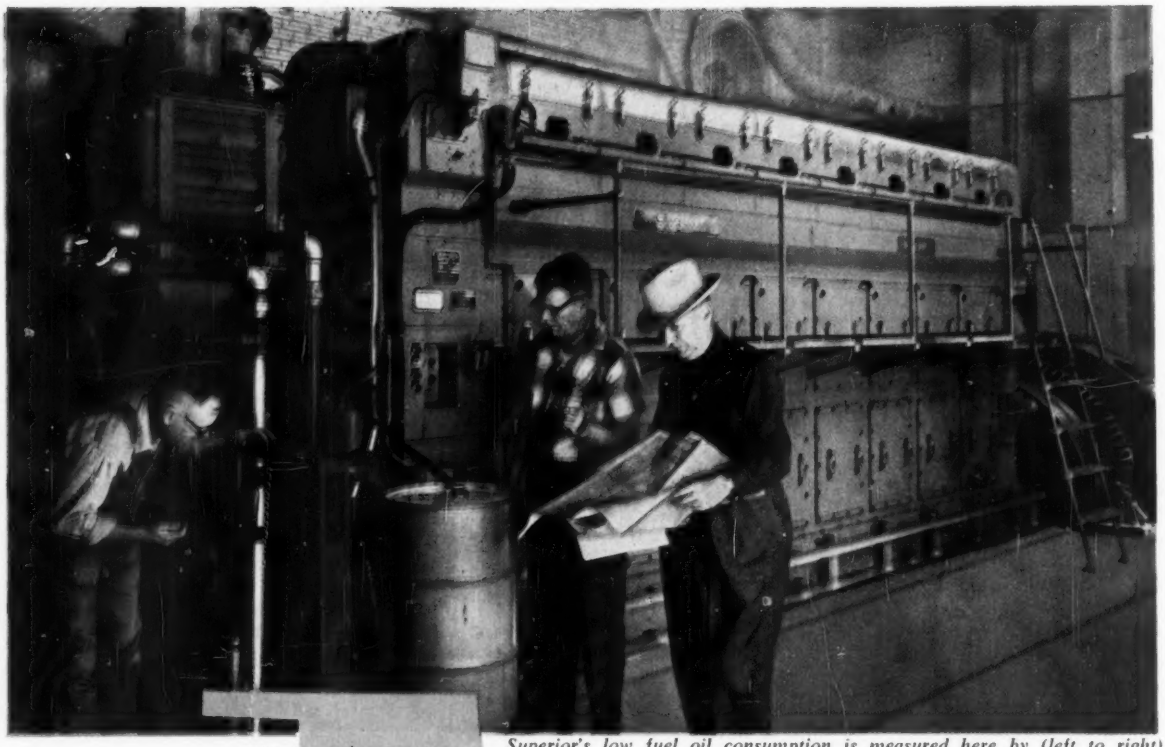
For More Information or the name of your nearest distributor, write or call any of the companies listed.

LUBRICATING OILS RPM DELO

TRADEMARKS "RPM DELO" AND CHEVRON DESIGN REG. U.S. PAT. OFF.

STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20
THE CALIFORNIA OIL COMPANY, Perth Amboy, New Jersey

STANDARD OIL COMPANY OF TEXAS, El Paso
THE CALIFORNIA COMPANY, Denver 1, Colorado



KINGFISHER ★ OKLAHOMA

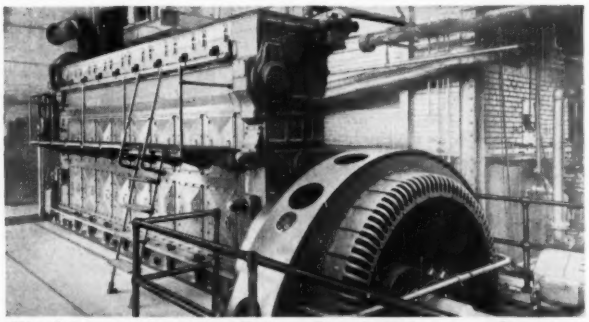
Superior's low fuel oil consumption is measured here by (left to right) Clarence Garrett, Plant Supt., A. B. Reese, Jr., White's Chief Field Engineer, and V. V. Long, Engineering Consultant, Kingfisher, Okla.

Civic thrift at Kingfisher prompts Superior Engine purchase

Kingfisher, an Oklahoma wheat belt town of 3700 population, is proud of its low municipal taxation. Earnings from the city-operated power plant pay most local operating expenses and finance periodic improvements and expansion to the plant itself. As usual, city fathers were both cautious and thrift-minded when a new engine-generator was needed recently. Their choice was a Model 80-GDSX-8 dual-fuel supercharged Superior which develops 1769 BHP at 360 RPM, to drive a 1250 KW generator.

Today many municipalities are making a "Superior decision"! Superior's highly developed open chamber combustion system is combined with a series of exclusive design developments and refinements to produce high power-to-fuel ratio. Diesels can run on a wide range of non-premium fuels including residuals, and dual-fuels operate on natural or manufactured gas, butane, propane or sewage gas. Even after extremely long periods of low-maintenance operation, replacement parts are seldom needed.

Superior's complete line of diesel, dual-fuel and gas engines range from 190 to 2150 HP, or 150 to 1500 KW. Get full information today by writing to:



Kingfisher saved on installation. Experienced power plant crew poured base and completed hook-up.

Superior ENGINES · ATLAS Imperial DIESEL ENGINES · White DIESEL

White Diesel

WHITE DIESEL ENGINE DIVISION
THE WHITE MOTOR COMPANY
Plant and General Offices: Springfield, Ohio

A BREAKDOWN OF ENGINES IN USE BY APPLICATIONS

	No. of Engines	Av. H.P. per Eng.
Railroad	61,000	1,200
Highway Transportation	192,000	140
Municipal & Utility	12,000	1,250
General Industry	278,000	300
Petroleum	72,000	300
Mining	47,000	150
Construction	440,000	150
Agriculture	483,000	75
*Marine	80,000	300
	1,671,000	

(+500,000 misc. engines)

*The marine field is covered by our companion publication RIVERS & HARBORS.

The production of diesel engines, exclusive of military demands, averaged between 160,000 and 175,000 units per year for past several years, but will increase by 30% in 1960.

years, selling primarily to the small stationary engine market. Many others have been introduced and while some are still sold with a degree of success in local areas, others have dropped out of sight.

Perkins spearheaded the vehicular engine invasion with their P-4's, P-6's and more lately their "Four-99" engine. In addition there are now new light truck engines and some for tractor use. Perkins is well established in the farm tractor field being in Massey-Ferguson and other units; currently leads in the American diesel taxi field: and the little "Four-99" is finding favor in truck refrigeration units. Sales in other applications are actively being pushed.

Mercedes-Benz has a two-pronged attack. Engines were being sold first through Curtiss-Wright but this has now been turned over to Studebaker-Packard. Mercedes-Benz diesel cars, the 180D and 190D, plus a line of light trucks and buses are being marketed through Mercedes-Benz Sales, Inc., also in South Bend, Indiana.

Deutz engines are now being marketed by Chrysler Corporation's Industrial Engine Division.

MAN's "Whisper" M-combination engine has been licensed by Continental. A multi-fuel version is being readied for the military and eventual commercial application.

Volvo with both the Penta and Bolinders engines has been developing markets. Penta engines have been used in repowering a number of trucks for relatively short-haul, light-load work with excellent results. Now, complete trucks are being imported with sales efforts first concentrated on the North Atlantic seaboard. The Bolinders industrial and marine engines are moving in the Southwest.

Some American builders are importing engines made by their factories in foreign countries. Ford sells their British-built diesel industrially. International Harvester is planning to import a line of small diesels they build abroad and also complete diesel farm tractors.

Mack is looking at Scania-Vabis to augment its diesel line. Hercules worked out their line of "polydiesels" with Hispano-Suiza.

Engine-wise, as in the case of national policy, isolationism is dead. Some American builders, waking up to trends too late, are caught with serious holes in the low end of their line. Licensing to build or buying suitable engines is the quickest way to get the holes plugged. In the case of Ford and I-H, it is probably considerably cheaper to import products from their existing foreign plants than to set up the tooling and facilities to build here.

In any case, either the impact of small imports spurred American builders into action or it is a remarkable coincidence that our builders started to look seriously at the low end of their lines right after the imports made their appearance.

(*Continued on page 28*)

LOOK for this Seal of the ASSOCIATION of DIESEL SPECIALISTS when you need Specialized Service for your engines.

identifies Qualified ADS Members
symbolizes Know-How—Modern Facilities—Ethics
guarantees work performed by Factory-Trained Technicians using Factory-Approved Methods with Best Materials

Listings below are available to ADS Service Members desiring to participate in this Directory. Code letters in each listing indicate the Specialized Sales and Services offered by each Member Shop. Code symbols are below.

F—Fuel Injection Equip. A—Engine Accessories & Specialties C—Engine Components & Parts
G—Governors T—Specialized Tooling & Test Equip. E—Electrical Equipment

CANADA

ADDISON AUTO ELECTRIC
6 Spadina Avenue
F A C Toronto 18, Ontario
G T E Tel: EMpire 8-4527

BROWN & MURRAY, LTD.
237 Fort Street
F A C Winnepeg 1, Manitoba
G T E Tel: WHitehall 3-8405

MEXICO

DIESEL Y EN CENDIDO DE MONTERREY
Matamoros No. 388 Pte.
F A T Monterrey, Nuevo Leon, Mexico
E Tel: Monterrey 3-38-55

ALABAMA

DIESEL FUEL INJECTION SERVICE
365 N. Royal Street
F A C Mobile 6, Alabama
G T E Tel: HE 2-7513, HE 3-5058

ALASKA

VAN'S DIESEL SERVICE
119 Second Street
F A C Juneau, Alaska
T E Tel: 6-1670

CALIFORNIA

H. G. MAKELIM CO.
655 Bryant Street
F A T San Francisco 7, Cal.
E Tel: YU 6-5682

DIESEL CONTROL CORPORATION
226 No. Marine Avenue
F A G Wilmington, California
T Tel: TErminal 4-8516

CONNECTICUT

W. J. CONNELL CO. OF HARTFORD
85 Airport Road
F A G Hartford 14, Conn.
T E Tel: JA 5-3401

CLARK-SON CO., INC.
354 Davenport Avenue
F A C New Haven, Conn.
G T E Tel: STate 7-6746

FLORIDA

DADE DIESEL COMPANY
2717 N.W. 54th Street
F A C Miami 42, Florida
G T E Tel: NEwton 4-3063

FLORIDA DIESEL & ELECTRIC CO.
1930 No. Miami Avenue
F A G Miami 32, Florida
T E Tel: FRanklin 1-7691

ILLINOIS

ILLINOIS AUTO ELECTRIC CO.
2011-37 Indiana Ave.
F A C Chicago 16, Ill.
G T E Tel: CA 5-4444

IOWA

ELECTRICAL SERVICE & SALES CO.
1313 Walnut Street
F A G Des Moines 9, Iowa
T E Tel: CH 3-7115

KENTUCKY

DIESEL INJECTION SERVICE CO.
805 Mulberry St.
F A C Louisville 17, Ky.
G T Tel: MElrose 5-7731

LOUISIANA

LANDRY & SIMONEAUX
1009 Front Street
F E Morgan City, Louisiana
Tel: 3346

GERHARDT'S INC.
819 Central Avenue
F A G New Orleans 21, La.
T Tel: VErnon 3-7254, VE 5-6492

JOHN M. WALTON, INC.
1050 Carondelet Street
F A C New Orleans 13, La.
G T E Tel: JAckson 5-0556

VAUGHAN & BUSH, INC.
164 North Market St.
A C T Shreveport, Louisiana
Tel: 2-8432

MAINE

EASTERN DIESEL SERVICE COMPANY
997 Congress Street
F A G Portland, Maine
Tel: SPruce 3-1082

MARYLAND

MECHANICAL EQUIPMENT CO., INC.
2140 Hartford Road
F A C Baltimore 18, Md.
G T Tel: Tux 9-7607

PARKS & HULL AUTOMOTIVE CORP.
1033 Cathedral Street
F A G Baltimore 1, Md.
T E Tel: SA 7-8383

MASSACHUSETTS

BOSTON FUEL INJECTION & ENGINE SERVICE CO., INC.
263 Northern Avenue
F A G Boston 10, Mass.
T Tel: Liberty 2-6646

W. J. CONNELL COMPANY
210 Needham Street
F A G N. Upper Falls 64, Mass.
T E Tel: DEcatur 2-3630

C. A. KROHNE & SONS, INC.
833 Columbus Avenue
F A C Springfield 5, Mass.
G T E Tel: RE 2-7441

MICHIGAN

KNORR-MAYNARD COMPANY
5743 Woodward Avenue
F A T Detroit 2, Michigan
E Tel: TRinity 2-2200

MINNESOTA

DIESEL SERVICE COMPANY
2509 East Lake Street
F A E Minneapolis 6, Minn.
Tel: PArkway 1-5065

MISSISSIPPI

WOMACK BROTHERS DIESEL SERVICE
1321 So. Gallatin St.
F A C Jackson, Mississippi
G T E Tel: FLeetwood 5-3439, FL 5-3430

MISSOURI

DIESEL FUEL INJECTION SERVICE, INC
9331 So. Broadway
F A G St. Louis 25, Mo.
T Tel: VErnon 2-2121

MONTANA

GAS & DIESEL TRUCK SHOP
2449 Raymond Street
F A C Missoula, Montana
T E Tel: LIncoln 9-7016

NEBRASKA

CARL A. ANDERSON, INC.
623 South 16th Street
F A T Omaha 2, Nebraska
E Tel: Harney 9400

ASSOCIATION of DIESEL SPECIALISTS, INC.

For information contact:
S. E. Franklin, Secretary, P. O. Box 1116, Wilmington, Calif.
Next Meeting — Theme "Operation Mile High."
February 19-21, 1960, Cosmopolitan Hotel, Denver, Colorado.

NEW JERSEY

JERSEY DIESEL SALES
601 Spring St. (Rt 1)
F A C Elizabeth 4, New Jersey
Tel: EL 4-2626

NEW YORK

A & D DIESEL SERVICE, INC.
145 — 21st Street
F A G Brooklyn 32, New York
T E Tel: STerling 8-4222

HETTRICH ELECTRIC SERVICE, INC.
1032 Elliott Street
F A G Buffalo 16, New York
T E Tel: GRant 7602

UNION CARBURETOR & IGNITION SERVICE
6 Pitkin Street
F A T Rochester 4, New York
E Tel: HAmilton 6-0483

NORTH CAROLINA

DIESEL INJECTION & HYDRAULIC SERVICE
122 Atando Avenue
F A G Charlotte 6, N.C.
T Tel: ED 4-8225

DIESEL INJECTION SALES & SERVICE
1625 North Tryon Street
F A C Charlotte, N. C.
G T E Tel: FRanklin 5-4152

DIESEL INJECTION SALES & SERVICE
3015 Hillsboro St.
F A C Raleigh, N. C.
T G E Tel: TE 4-5553 TE 4-2316

NORTH DAKOTA

MIDLAND DIESEL SERVICE & ENGINE CO.
25 — 28th St. South
F A C Fargo, North Dakota
T Tel: ADams 2-5578

OHIO

STANDARD MOTOR PARTS, INC.
200 Carroll St.
F A C Akron 4, Ohio
G T Tel: JEfferson 4-7143

DIESEL INJECTION SERVICE CO.
3032 Reading Road
F A C Cincinnati 6, Ohio
G T Tel: AVon 1-5315

OKLAHOMA

AMERICAN ELECTRIC IGNITION CO.
124 N.W. Eighth Street
F A C Oklahoma City 2, Oklahoma
T E Tel: CEntral 5-6494

MAGNETO IGNITION COMPANY, INC.
701 West 5th Street
F A T Tulsa 7, Oklahoma
E Tel: LU 2-8197

OREGON

AUTOMOTIVE PRODUCTS, INC.
1700 S.E. Grand Avenue
F A G Portland 14, Oregon
T E Tel: BEImont 4-5241

PENNSYLVANIA

AUTOMOTIVE IGNITION CO., INC.
6358-64 Penn Ave.
Pittsburgh 6, Penna.
T E Tel: EM 1-7700

PENN DIESEL SERVICE CO.
100 Prince St.
F A G Harrisburg, Penna.
T Tel: KI 5-8530

PENN DIESEL SERVICE CO.
27th & North Church Streets, RD#1.
F A G Hazleton, Pa.
T Tel: GL 4-6771

GENGLER'S DIESEL SERVICE & SALES
2nd & Orange Street
F A C Mount Carmel, Pa.
G T E Tel: 1261 & 1262

PHILADELPHIA DIESEL, INC.
2520 Orthodox Street
F A C Philadelphia 37, Pa.
G T E Tel: Pioneer 3-3773

TENNESSEE

BARNES-RHODES COMPANY
401 Chestnut Street
F A G Chattanooga 2, Tennessee
T E Tel: AM 7-6752

AUTOMOTIVE ELECTRIC SERVICE CO., INC.
982 Linden Avenue
F A G Memphis 4, Tennessee
E Tel: BRoadway 5-3118

M & M FUEL INJECTION SERVICE
2511 Broad Avenue
F A G Memphis 12, Tenn.
T Tel: FA 3-1494

TEXAS

MAGNETO & DIESEL INJECTOR SERVICE
1801 Lexington Boulevard
F A T Corpus Christi, Texas
E Tel: TU 2-8662

BEARD & STONE ELECTRIC CO., INC.
3909 Live Oak St.
F A T Dallas 21, Texas
E Tel: TAylor 4-6751

MAGNETO & DIESEL INJECTOR SERVICE
F A T Dallas, Texas
E Tel: RI 7-9650

MAGNETO & DIESEL INJECTOR SERVICE
6931 Navigation Blvd.
F A T Houston 11, Texas
E Tel: WA 1-4830

UTAH

MIDWEST SERVICE & SUPPLY CO.
1333 South Main St.
F A G Salt Lake City 15, Utah
E Tel: INgersol 6-8795

VIRGINIA

DIESEL INJECTION SALES & SERVICE, INC.
808 Union St.
F A C Norfolk 10, Va.
T G E Tel: MAdison 2-3103

DIESEL INJECTION SALES & SERVICE, INC.
910 North Boulevard
F A C Richmond, Va.
G T E Tel: EL 8-8170

DIESEL INJECTION SALES & SERVICE, INC.
1016 Delaware Street
F A C Salem, Virginia
T G E Tel: DU 9-7296

WASHINGTON

SEATTLE INJECTOR COMPANY, INC.
1410 Air Port Way
F A T Seattle 4, Washington
Tel: MA 3-1135

WISCONSIN

FUEL INJECTION & ELECTRIC, INC.
2636 North 30th St.
F A C Milwaukee 10, Wisconsin
G T E Tel: UPtown 1-9477

MANUFACTURER MEMBERS

ADECO PRODUCTS, INC.
5435 No. Wolcott Ave.
Chicago 40, Illinois

AMERICAN BOSCH CORPORATION
3664 Main Street
Springfield 7, Massachusetts

C.A.V. LIMITED
14820 Detroit Avenue
Cleveland 7, Ohio

FARRIS PICKERING GOVERNOR COMPANY, INC.
400 Commercial Ave.
Palisades Park, New Jersey

HARTFORD MACHINE SCREW CO.
Hartford 2, Connecticut

KIENE DIESEL ACCESSORIES, INC.
10352 Pacific Avenue
Franklin Park, Illinois

PETROLEUM SOLVENTS CORP.
9 East 45th St.
New York 17, New York

ROBERT BOSCH CORPORATION
40-25 Crescent Street
Long Island City 1, New York

SCINTILLA DIVISION
Bendix Aviation Corporation
Sidney, New York

SIMMS MOTOR UNITS, LTD.
Oak Lane, East Finchley
London N2, England

START PILOT CORPORATION
Mineola, New York

WOODWARD GOVERNOR COMPANY
Rockford, Illinois

ASSOCIATE MANUPACTURER MEMBERS

BACHARACH INDUSTRIAL INSTRUMENT CO.
200 North Braddock Avenue
Pittsburgh 8, Pennsylvania

MARINE PUMPS, INC.
226 North Marine Avenue
Wilmington, California

ROBERT BOSCH (CANADA) LTD.
P.O. Box 263, Station U
Toronto 18, Ontario, Canada

UNITED STATES AVIEX CO.
423 North 9th Street
Niles, Michigan

"1960 will mark the beginning of the decade of the small diesel. In both industrial and military applications the small diesel is beginning to replace gasoline engines. On land and on sea, growing application of low horsepower diesels is making their manufacture one of the fastest-growing power industries in the U. S. today."—W. Denis Kendall, President of American MARC.

***"Tractors on farms doubled between World War II and the end of war in Korea; from about 2-million to about 4-million. Rate of increase in the past six years has been markedly slower here, to some extent, to a gradual saturation of the market. Demand, seen in 1960 as somewhat lower unitwise than in 1959, is primarily for replacement. Also, the tractor is being pressed by competition from specialized self-propelleds: harvesters, swathers, high-clearance units, etc. Thus, total amount of power used on farms is likely much greater than reflected by tractor numbers alone. Most recent trends in the market are the growing importance of diesel engines in the 35-55-hp range, introduction of 4-wheel drive units and increasing importation of tractors"*—from Implement & Tractor, 22nd Annual Statistical Number.**

"The market for heavy-duty trucks increased nearly 40% in 1959 and should continue to expand in 1960. Sale of trucks in the 19,500-lb and over class should rise another 10%.—J. N. Bowman, President, White Motor Company.

1960—Year of the big sell . . .

One of the biggest changes in the diesel industry, accentuated in the past year, is in its sales attitude. Perhaps this is a sign of its emergence into the big time. OEM and aftermarket, plus a growing concept of the industry's tremendous potential, is stimulating a lot of new-line thinking.

Biggest change is the realization that people don't buy engines; you sell them. And you don't sell them from the factory; you sell them face-to-face with the customer where you are in a position to know and fill his needs. This means strong distributor organizations backed up by regional factory sales and service setups.

Most of the aggressive companies are moving in this direction. Also, it's no longer a case of a lot of small dealers and distributors that are pretty ineffective but fewer strong, active houses that will push engines aggressively and constructively.

While some outlets are still sitting back waiting for business to come in over the transom or half-heartedly knocking on the same doors to move engines, this type of selling will soon be a thing of the past or the engine builder will drop out of the parade. Today's concept is to *make business*. Study possible applications, develop the case for the product and then show the customer how you can do something for him by selling it to him.

If you analyze it, it's no different from selling insurance or business machines. You're building sales by showing others what you can do for them. They might not have thought of it otherwise.

The encouraging thing is that we are seeing more and more of this type of sales effort and promotion in the diesel industry. It is one reason that we are so optimistic on next year's sales.

Engines are the top of the pyramid . . .

Engines are only part of the whole diesel industry. Yearly production is only an increment added to the top of the millions of units already in use. Some engines drop out each year but the net total climbs higher. This means a greater demand for parts, accessories and services. This is by far the biggest segment, the broad base, of the industry.

Engine builders understandably want to hold as much of this aftermarket business as possible. But here we have another parallel with the automotive industry. It once wanted to do the same thing but as registrations mounted, independents got into the parts, accessory and service end of the business whether it liked it or not. Fact is that total demands in this business area have far exceeded the capacity of the automotive dealers and distributors.

We've seen signs that diesel engine builders are beginning to face these facts. User preferences and concepts of adequate service are receiving attention and are being given more consideration than ever before. A pattern of integration to assure any owner adequate parts and service is slowly building. Just as in sales, this service to the user must be right down at the customer's level where there is full appreciation of his needs and their urgency.

Results of all this is a broadening of the industry's base way out of proportion to annual production increases. It is an expanded market for not only the parts and services but for tools and equipment of all kinds needed to do the expanding job.

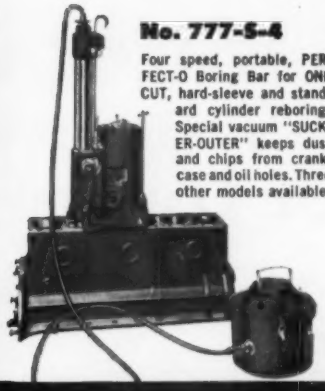
In a nutshell . . .

Our predicted sales increase for 1960 is based on the following factors:

1. Better products at lower prices.
2. More aggressive selling practices.
3. An economic climate demanding utmost savings in power costs.
4. New applicational concepts pointing to big news markets.

VAN NORMAN

DIESEL SHOP HEAVY DUTY SERVICE EQUIPMENT



No. 777-S-4

Four speed, portable, PERFECT-O Boring Bar for ONE CUT, hard-sleeve and standard cylinder reboring. Special vacuum "SUCKER-OUTER" keeps dust and chips from crankcase and oil holes. Three other models available.

No. 561

Automatic Wet Surface Grinder for fastest above-the-wheel wet grinding of all heads, blocks, and manifolds with quickest set-up time. Three models — 38" 46" and 60" capacities.

No. 570

Rotary Broach uses **new** cutter action to quickly machine cylinder heads, engine blocks, and other surfaces. Top-Side loading keeps chips out of work. **Only machine of its kind!**

No. 467 Heavy-duty, one-man, Crankshaft Grinder for shafts up to 84" x 22". Fast, accurate, vibrationless operation. One of eight machines in this series.

No. 404

Brake Drum Lathe **turns and grinds** simultaneously with dust-free Vapo-Jet Wet Grinding Attachment. Multiple speeds — multiple feeds. Exclusive Load-Compensator supports all drum and tire assemblies.

No. 304

Medium-priced, heavy-duty, Brake Drum Lathe for handling drums on cars and trucks up to 10 tons! Features simultaneous turning and grinding with exclusive Vapo-Jet Wet Grinding Attachment

No. 302

Moderately priced "Little Brute" Brake Drum Lathe takes passenger car and light truck drums **mounted** up to 500 pounds. **Turns and grinds** at same time with optional Vapo-Jet Wet Grinding Attachment.

No. 253

Camshaft Grinder speedily and precisely reconditions worn camshafts. 52" between centers; 9" maximum diam. Also, grinds main crankshaft bearings. 84" model available.

PRECISION MACHINING

THE VAN NORMAN LINE

for

- **Cars • Trucks**
- **Buses • Tractors**
- **Diesels • Compressors**
- **Industrial and Marine Engines**

- Brake Drum Lathes
- Camshaft Grinders
- Crankshaft Grinders
- Cylinder Boring Bars
- Rotary Broach
- Horizontal Automatic Wet Surface Grinders for Heads, Blocks and Manifolds

VAN NORMAN MACHINE COMPANY

Division of Van Norman Industries, Inc. • Springfield 7, Mass., U. S. A.

ADVANCED DESIGN PISTONS

By GILLETT AND EATON

for Longer Heavy Duty Service

TROUBLE-FREE with thousands in use

★ Low initial cost ★ Low cost per mile

★ Amazing increase in piston life

★ Maintains new engine power and performance

G and E

WIRE INSERTS PUT CAST IRON WEAR IN TOP RING GROOVE

G and E Wire Insert Piston before machining (left) and after ring grooves are cut (right) showing how the steel wire forms a tough wear-resisting surface on both faces of top ring groove. The patented ferrous plug molded in the head (for diesel pistons) prevents burning through head and lengthens diesel piston life!

With the thousands of G and E "Wire Insert" Pistons in use for periods up to 3 years—a phenomenal record for trouble-free operation has been established. The "Wire Insert" greatly reduces top ring groove wear and increases piston life.

The "Wire Insert" piston design—exclusive with G and E—combines all the advantages of aluminum alloy pistons with the long life of steel in the top ring groove lands. No noticeable increase in weight—unequalled for rapid heat flow—and at low cost.

A pre-shaped steel wire is cast into the piston where the top ring is located. When the grooves are machined, the closely spaced wire surfaces form hard bearing areas on top and bottom faces of the groove. Result—reduced ring land wear, longer piston life at lower cost.

as LIGHT as aluminum . . . wears LIKE IRON

VANASIL*

"OIL-ABSORBING" PISTONS

FOR GASOLINE AND DIESEL ENGINES

*Gillett & Eaton's trademark for a Hyper-eutectic silicon aluminum alloy

VANASIL Pistons have repeatedly run way over 200,000 miles with only .002" to .005" wear on the top ring grooves. On-the-road ring breakdowns caused by badly worn grooves are almost eliminated because *Vanasil Pistons reduce top ring groove wear up to 75%!* Nothing else compares with the genuine G & E Vanasil—the original Hyper-eutectic silicon alloy, proven by 19 years of use.

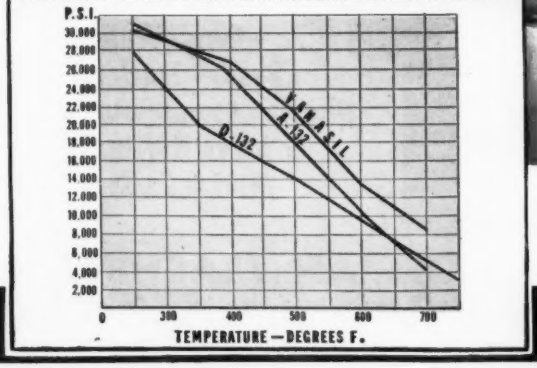
You Get ALL These Advantages Only In

GENUINE VANASIL PISTONS

G & E PROVED Hyper-eutectic Silicon Alluminum Alloy

1. LIGHT WEIGHT—Same as other aluminum alloys.
2. SCORING, SCUFFING MINIMIZED—Because of "Oil Absorbing" microscopic porous texture.
3. LONGER LIFE—30% less friction—30% harder. Greater "hot strength"—see chart at right.
4. TOP RING—Breakage virtually eliminated because of reduced ring groove wear.
5. LOW EXPANSION—Characteristics of Cast Iron.
6. CLOSE CLEARANCES—Fitted with Cast Iron Clearances.
7. SOLID SKIRT DESIGN—No expansion devices required.
8. HIGH HEAT CONDUCTIVITY—Similar to other aluminum alloys.
9. PLATING—No tin or other break-in coating required.

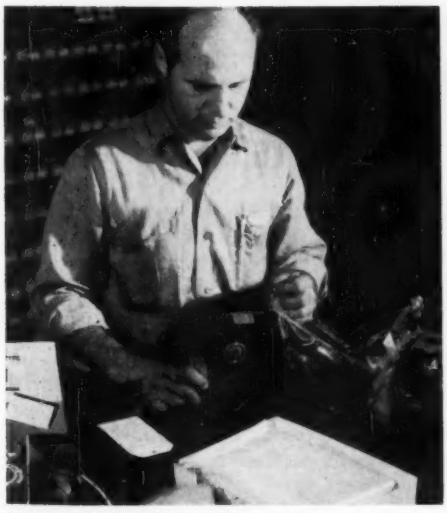
A COMPARISON OF TENSILE OF VARIOUS ALUMINUM ALLOYS AT ELEVATED TEMPERATURES



Write for complete information and prices on Gillett and Eaton's Wire Insert and Vanasil longer lived pistons.

"Our 91st Year"

GILLETT and EATON, Inc. 846 DOUGHTY STREET LAKE CITY, MINNESOTA



Bob Humrick protects rebuilt magnetos with low-cost plastic poultry bags.

Better Product Appearance Plus Protection . . . .

adds up to good business practice, improves customer satisfaction

THERE'S value in product appearance and doubly so when the "package" promotes all-important cleanliness. That's the feeling—and a very valid one—of Bob Humrick, owner of Automotive Diesel & Electric Co. in Bakersfield, California. Bob prides himself on running a shop with all the snap and polish of today's competitive retail store.

In diesel repair and service work, job quality comes first. Bob sees to that. An ADS member, he stays on top of all technical and industry developments. He is convinced that next in importance is the packaging and appearance of finished work. Therefore, it's no accident that his shop turns out some of the nicest looking work in the central California area.

More than meets the eye . . .

Say what you want, there is an appeal to a good-looking, businesslike package. But that's only one of the little extra touches. Protection is a second job. Shops repairing components have a peculiar problem; they can't control the whole job. Units may go into storage or just in transit get rough and careless handling.

Entry of dirt is one of the biggest problems. Anything that protects the unit right to the point of installation and use benefits the customer and protects the shop from unwarranted claims. Fortunately, getting such protection is not an expensive proposition.

For example, in Humrick's shop all repaired parts such as injectors are delivered with threads, machined ends and nozzle tips protected by resilient plastic. A simple dipping technique is used. Bob bought an inexpensive electric pot—a deep-fat frier will do—from a drugstore. Controlled heat is an advantage.

A low melting-point ethyl cellulose plastic is used. This particular coating was bought from Western Coating Company. All that is required is to dip the portions to be protected and allow the coating to harden at room temperature. The inexpensive plastic is also used to protect parts and tools in his own shop.

Another use of plastics is for packaging repaired injection pumps and magnetos. Bob found that clear polyethylene bags in sizes commonly used for packaging chickens and turkeys were just the ticket. These were available at low cost from the Zellerbach Paper Co. When stapling them closed, the claim tag is attached at the same time.

Bob Humrick sums up . . .

"There is always a dirt and dust problem, particularly around here. We've solved it by use of the inexpensive plastic dip and low-cost poultry bags. More than that, we've dressed up our delivery items and provided the customer with a package that's more attractive and will protect this equipment until he's ready to use it."

Openings of rebuilt injector are sealed, left, by dipping in hot plastic. Coating hardens at room temperature, right. Protection is positive until plastic is cut and peeled at the time of installation.

CHRYSLER-DEUTZ MERCHANDISES . . .

. . . setting a fast pace for marketing diesel engines in the "selling sixties"

Sales manager Reinders points out details of cutaway at Ed Gross' in Pelham, N. Y.

AS THE NEW YEAR gets rolling the diesel industry will begin to hear the sound of something new and exciting. As the tempo of Chrysler's Deutz diesel sales campaign picks up it is going to make news. Something different is brewing in diesel marketing—Detroit merchandising techniques; a "power" sales pitch certain to arouse interest wherever diesels are used.

The automotive touch . . .

After extensive preparations in service training and sales indoctrination, Chrysler Marine and Industrial Engine Division is about to break loose "impact" advertising and promotion for their Deutz diesel line.

Initial phases of the training program were covered in the first of this two-part report on Chrysler's merchandising program, (DIESEL POWER, November 1959). Five very thorough service and sales conferences will wind up this period of readying Chrysler people for the big push. These targets are set, and the market research work has been done. Sales and service are lined up.

Heading the campaign is L. E. (Larry) Nelson, vice president in charge of sales for the division. With his strong automotive background, the Deutz marketing plans will be tailored more dynamically than campaigns the diesel industry is used to. It is this thinking that makes it an exciting prospect. We think it will have echos in every corner of the business.

"After we sell, we serve . . ."

Before we go into some of the surprises Chrysler is planning in its advertising and promotion, a few points on service and parts should be given hard focus. The long months of planning and setting up engine centers and associate dealers will pay off in making the slogan "after we sell, we serve" stand up. A unique promise will form the backbone of Chrysler's "service" policy. And this is a quote from Chrysler management: "No Deutz user will ever be more than 8 hours away from parts and service. We'll see to this. We've made this stick in our industrial engine business and we're going to make it stick here."

This statement illustrates why Chrysler has attached so much importance to its carefully organized network of service and parts centers.

"We've made an exhaustive study of the whole field over a long period of time. We've been able to learn from the mistakes others have made—as well as from the success of other similar endeavors.

"After we sell, we serve. And we're going to sell. If there has ever been any doubt about Chrysler's strength in this field—by the first of next year I can promise that there will be none," says Mr. Nelson.

Cool man, air-cooled . . .

Part of Chrysler's initial move into the diesel field, once the decision to take on the Deutz line had been made, was the selection of two young engineers with strong poten-

Chrysler-Deutz sales team, S. C. Kellner, Ed Gross, A. G. Cunnings and Glen Reinders.

John Hurst and Glen Reinders with a task-force of some 20 trucks carrying Deutz engines. These trucks will take the engines out into the field where the user can see them run, get to know this rugged line of diesels.

tials, Glen Reinders and John Hurst. Reinders, with the responsibility of sales manager, recently captained the Chrysler team at one of the first public showings in the east of the Deutz engines. This was at Ed Gross's exciting "Hello Neighbor" week in the Pelham, N. Y. distributor's plant. Photographs of this event show the interest the engine and its unique air-cooling system evinced.

"One of the main objectives of our initial advertising and promotion releases will be applications where the air-cooling feature is a particularly happy one. This means in any tough environmental situation.

"Take one application. Out in the Arabian desert you have ambient temperatures that run up around 140°F. Shifting sands can completely cover an installation unless it is placed on stilts well above the desert floor. Every 50 miles along a pipe line through this dusty inferno there's a Deutz diesel. They provide protection, electrostatically, against corrosion. These engines burn crude right from the pipe, are completely unattended.

"If anything goes wrong a red flag is tipped up. Cruising airplanes spot trouble and drop down to take care of it. This has proven to be a very successful installation for the Deutz air-cooled engines. And the air-cooling is of tremendous importance under these conditions," John Hurst told us.

"There are a good many applications where air-cooling advantages will pay real dividends for the user. We will aim at the obvious ones first, where a lot of dust, extreme temperature ranges, tough environment make them desirable," he added.

A new beat . . .

One of the big guns in Chrysler's "impact" marketing concept will be to take the engine to the user. This will be accomplished by putting Deutz engines into the back of a fleet of Dodge trucks and rolling right out into the field. The engines will be set-up to run and audiences will get a first hand look at the new product—in action.

And the silken touch may be added. Some lucky lass will earn the title of "Miss Air-Cooled Diesel". It will be her job to help attract interest to Deutz displays across the country. These displays will be part of a projected series of "Power Carnivals" visiting state and county fairs, and other such get-togethers.

This is just a hint of what Chrysler now plans for its Deutz sales promotion for next year. These are sales techniques that have been proven in other fields—Chrysler plans to use them in a year that promises to be one of the most highly competitive in the history of the industry.

New lines for new applications . . .

Another factor to watch will be user tests of Deutz diesels in truck applications. Eminently successful in Europe in thousands of vehicles, engines have now been engineered for road conditions here. Again, air-cooling is a feature many users would like to have on the highway. Chrysler people are confident that this will be a big field for Deutz as things get rolling.

"We know that this is a rugged, dependable line of engines. We've laid a solid foundation for service. We're ready to go to the user and we feel sure that our marketing plans will stimulate more interest than this field has seen in a long time. Look for exciting things from Chrysler in 1960," Mr. Nelson stated.

With the Big Three in the field, and with other diesel manufacturers becoming more aggressive and offering a wide variety of engines for every application, 1960 should indeed be a year to look forward to. And Chrysler's marketing plan, with its dynamic flare, is something to watch and may well set a new pace for the industry.

Successful "Hello, Neighbor" week promotion drew a parade of visitors to the N. Y. distributor's exhibits.

Increased power, lower fuel consumption

THREE NEW GENERAL MOTORS 567 DIESEL ENGINES

New "D" series available in turbo-charged or normally aspirated models

First application for the new "D" engines was announced recently by Electro-Motive for a new and more powerful, more economical line of Diesel locomotives. Four years in development, two of the new engines are turbo-charged, one normally aspirated.

A long list of improvements have been incorporated to give these engines even more stamina, reliability and lower maintenance requirements than their famous long-lived predecessor, the General Motors 567C engine.

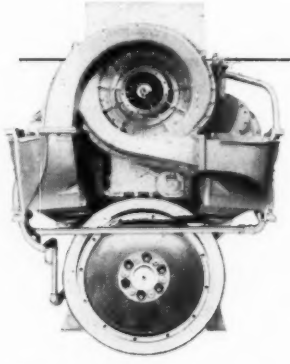
Normally aspirated series

The same fundamental design is used for each engine whether normally aspirated or turbo-charged. As a result, the normally aspirated 567D-1 engine, made to turbo-charged standards, is an engine of outstanding durability and low maintenance. An increase in compression ratio from 16:1 to 20:1 and a new needle-valve injector provide for increased power and fuel economy. Specific fuel consumption at full load is 5 percent less than the previous "C" engine.

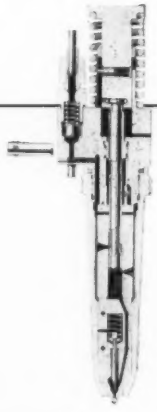
Turbo-charged series

The Electro-Motive designed turbo-charger, unlike conventional super-chargers, operates efficiently at low and high engine speeds. This feature is especially important for starting, low load and acceleration. The turbo-charged 567D-2 and 3 engines will not derate over a wide range of altitudes. Under test in actual locomotive service conditions, full engine output was maintained at over 8,000 feet altitude. In addition, the turbo-charged engines reduce specific fuel consumption by as much as 10 percent at full load.

Continual improvement of major components has long been an Electro-Motive policy. These new engines represent more than twenty years of Diesel engine development. They are the finest expression yet of the General Motors 567 series—more powerful, more economical and even more reliable.



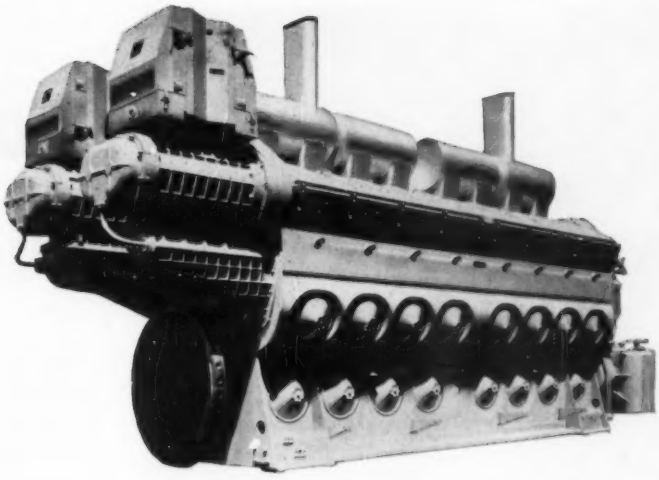
New turbo-charger is Electro-Motive designed and developed. Unit operates from engine gear train at low engine speeds, from exhaust turbine at high speeds. Combination drive provides adequate air supply at all operating levels. Turbo-charger maintains engine output in high altitude operation.



New needle-valve injector gives better fuel atomization and eliminates after dribble, both factors to improve specific fuel consumption. Electro-Motive developed, the new injector is standard on all 567D engines. It is also applicable to earlier General Motors 567 series engines and present spherical valve type injectors can be converted to the new type.

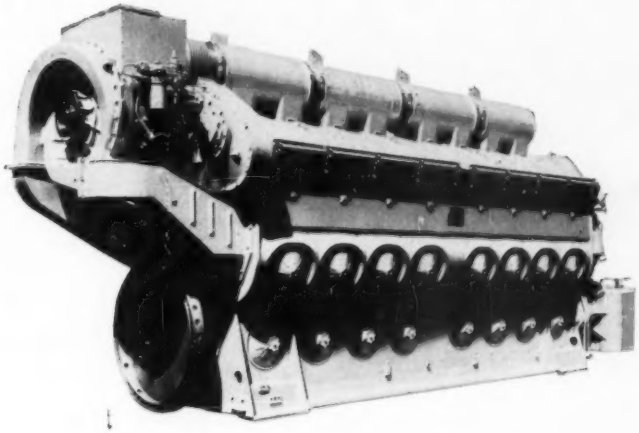
567D-1
Normally Aspirated

1800 tractive horsepower. 20:1 compression ratio. 16-cylinders. First used in the General Motors GP-18 and SD-18 locomotives. 12-cylinder version is used in the new General Motors RS-1325 locomotive.



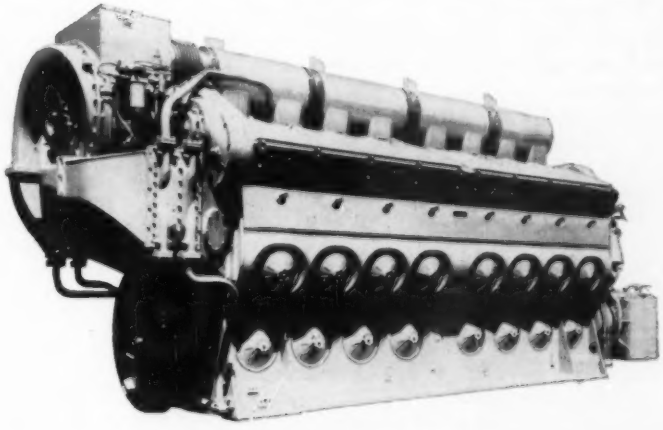
567D-2
Turbo-charged

2000 tractive horsepower. 14½:1 compression ratio. 16-cylinders. First used in the General Motors GP-20 locomotive.



567D-3
Turbo-charged

2400 tractive horsepower. 14½:1 compression ratio. 16-cylinders. First used in the General Motors SD-24 locomotive and MU-60 peaking plant.



ELECTRO-MOTIVE DIVISION · GENERAL MOTORS

La Grange, Illinois *HOME OF THE DIESEL LOCOMOTIVE*

In Canada: General Motors Diesel Limited, London, Ontario

Frank Zottarelli, right, discusses worn spindle. Condition of parts, correlated with length of service and maintenance history, is a good indicator of quality . . . recurrent troubles or premature failure might well determine product switch.

Today's Diesel Man

"Our maintenance department is the one big department in our organization capable of *really* affecting costs. It has saved us thousands of dollars in lube oil and other expendable items through their controlled use; it has cut costly major breakdowns. Most important, it has provided Cantlay & Tanzola with a record of dependability—the strongest sales weapon a trucking executive can have."

Tom Rafael
vice-president
Fleet Operations

Text and pictures by Paul B. Harder

WHEN Frank Zottarelli signed on as grease monkey for Cantlay & Tanzola, Inc. of Los Angeles in 1940, his training was that of a man who had made his living building up light weight, high-rpm race cars. C & T provided him with an intimate introduction to heavy duty diesel power.

"Oh Jeez! When I saw all that iron . . ."

In 1940 the firm of Cantlay & Tanzola was well established in the western state as a long-haul tank-truck firm hauling crude and refined petroleum products through California and Arizona. They were in the midst of converting from gasoline to diesel.

"We had 28 tankers then," reflects Frank, "and we had a total shop crew of about 50 including janitors, painters and welders. I spent my first six months looking up at the bottom of those trucks from the grease rack."

The tanker business, like the freight business, is primarily a service operation . . . if you can deliver the goods, you're on top of the pack.

Early in the game, Cantlay & Tanzola determined that one of the essentials of regular delivery was the instant availability of trained mechanics—men who could race out to the desert in a pickup truck full of tools and parts and get an ailing rig back on the road.

"I remember being sent to a rig that was broken down in the mountains near Lone Pine, California shortly after I graduated from the grease rack. The driver had burned up the engine. It was a dark, freezing cold night. I got to the rig at eight in the evening, the driver had left. By six in the morning the truck was ready to roll. With no help, I had put in a whole set of pistons and sleeves."

Frank acknowledges that he enjoyed these road calls. "I was young and full of vinegar. The challenge of getting the Cantlay & Tanzola rigs back on the road under the worst possible working conditions appealed to me."

Competition and advancements in engine design and drive mechanisms have made such extensive roadside repair work a thing of the past. Now, if it's anything more than a minor repair, the rig is towed to the nearest Cantlay & Tanzola depot where a standby rig takes over. Major repairs are made back in the shop.

While Frank Zottarelli was proving his metal as a first-class diesel mechanic, Cantlay & Tanzola expanded. Frank's responsibility increased in proportion. In successive steps, Frank moved from grease monkey to mechanic to swing shift foreman to shop superintendent.

Between Frank's grease rack days and today, Cantlay & Tanzola has grown from a firm running 28 tankers in two states to a veritable trucking empire including over 1400 tank trucks, freight rigs, smaller pickups and serv-

ice vehicles operating in ten western states. Depots of varying size are located in a dozen major cities and Frank Zottarelli, whose responsibilities include major maintenance problems of the entire firm, has over 150 men in his own five-acre Los Angeles repair facility.

"Our biggest challenge today, just like it was when I was on the grease rack, is to keep the rigs rolling," notes Frank. "Today we've got better tools, better facilities, more depots and better communications. But we also have more complex engines and drive systems. We've got more competition. It's still a challenge."

But today Frank has little chance to bust a knuckle or dirty a set of overalls. In his office overlooking his two 260 ft. long covered shop and garage areas he has all he can do to keep up with the paper work required to maintain this multi-million dollar fleet.

For one thing, Cantlay & Tanzola, like most firms in the trucking field, has an exhaustive PM schedule—a fixture unheard of in the days when Frank worked as a mechanic.

"You don't think PM is big with us? This is our PM room."

Frank led me into an adjoining office filled with tiers of maintenance files. Like the archives of a doctor's office, each file indicates ailments, treatments and routine inspections.

"It used to be I could look out at the grease pit and point to the rig that was ready for service. PM in those days amounted to resting your hand on the radiator and feeling how she vibrated."

Now it's all handled with drill team precision. At the completion of every run, drivers fill in a squawk sheet, a trip report that gives them an opportunity to check difficulties they have noted from headlight to taillight. A check in one of the squares on the trip report is supplemented by a more detailed report on a shop repair card.

"You've heard of 'must' reading. This is 'must' writing. We don't let the drivers out the gate until they've filled in these reports."

This information is supplementary to the regular maintenance records. All these reports, filed by truck number in specially-designed series of floor-to-ceiling files, comprise a permanent *Dossier* on the life of C & T equipment. They provide a basis on which millions of dollars in large and small purchases are made.

"We've had PM since 1954," states Frank. "It's expensive, it takes time, it consumes space. But we wouldn't consider being without this setup even if ICC regulations allowed it."

Frank drives home this point by recalling the savings in lube oil made possible through judicious use of PM records.

"In the first 12 months this program was in operation, we saved over $2000 in lube oil alone simply because we handled our oil changes on a strict mileage basis rather than the more common trip basis."

When you reflect that the 325 diesel trucks under Frank's direct responsibility run a cumulative 40,000,000 miles a year—that some individual units will top 200,000 miles a year—you realize that when Frank Zottarelli talks savings, he isn't talking peanuts.

From the point-of-view of cleanliness and efficiency of a maintenance and repair facility, C & T's two-year-old Los Angeles depot is certainly the shop against which

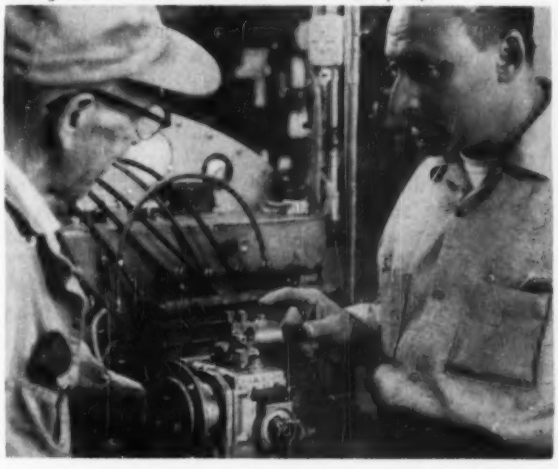
Typical Catlay & Tanzola rig averages 120,000 miles per year trucking through western states. All diesel, some rigs top 200,000 miles per year.

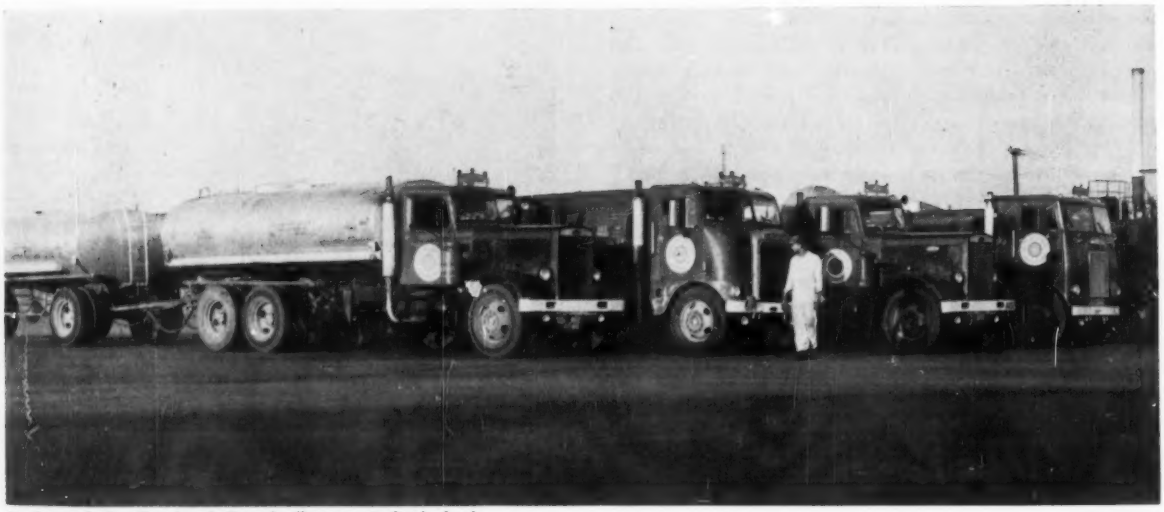
all other competitive shops must be compared. It is supermarket-style in its spaciousness and they say you can't find a dark corner in the layout.

Frank Zottarelli and his men not only designed the entire shop area, they custom built most of the fixtures and much of the equipment.

"We worked night and day getting it in operation," reflects Frank, "but it's perfection as far as we're concerned."

Despite administrative burden, Frank stays close to all phases of the actual work. Here he discusses testing and calibration of a Cummins PT fuel pump.





Tankers of the Cantlay & Tanzola fleet await final check before heading north, south and east. They transport a variety of chemicals and refined petroleum products.

The common-denominator for the shop area is that it's BIG.

Two immense steel canopies in the middle of five acres of blacktop provide a functional and modern shelter for shops and racks totaling in excess of 80,000 sq. ft. High enough to permit easy clearance with the tallest rig, these canopies have enabled Frank Zottarelli to locate his office, PM room and locker rooms in a spacious second floor area over the tool and parts room in the center of one of the garage areas.

With over 1400 pieces of rolling equipment plus over 100 refrigerated freight trucks. ("We're converting these from gasoline-driven compressors to Perkins P-4 diesels"). Frank has been able to set up an assembly line operation. The only thing the shop can't do is grind the shafts.

"We've standardized on engines and drive units," notes Frank. "We have six standby engines and a crew of five men constantly rebuilding worn engines, replacement gear boxes, pumps, injector systems."

Decisions relating to purchases takes an appreciable amount of Frank's time—talking to sales and service representatives, reading technical trade journals (including DIESEL POWER), studying new repair, service and parts bulletins. This has meant enforced systematizing of most of his purchasing operations. Logistics indicates why this is a necessity.

During the current year C & T added a score of entirely new units to its fleet, replaced as many obsolete units and purchased the tremendous quantities of fuel, lubricants and replacement parts required to keep 1400 vehicles on the road. Though Frank has little to say about the purchase of, say, a dozen new tankers, he has a dominant voice in decisions relating to maintenance and repair parts, tools and services. Through his intimate knowledge of equipment, and from product history gleaned from his PM file, he is able to make almost unerringly accurate product selections.

Through Cantlay & Tanzola's proven record of a high percentage of "right decisions" regarding product and equipment trends over the past two decades, the firm is sometimes known as a prestige account. One observer commented: "as C & T goes, so goes the industry."

Frank, asked how such a reputation is earned, pointed out that it probably started years ago when the firm did a lot of experimenting with tools and equipment.

"We used to do a lot of guinea-pigging. When something new came out, we were the ones to try it out—new lights, new tires, new cushions—everything. It's different now. We still take a lot of interest in new products, but won't touch them unless we're certain they would be beneficial.

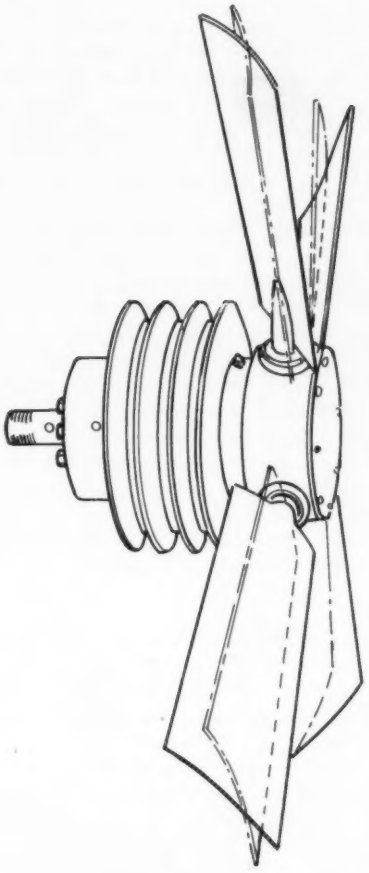
One reason for this attitude is that Frank is responsible for maintenance and repair purchasing for the entire Cantlay & Tanzola operation in ten states. With new products constantly appearing on the market, he must purchase those that are truly economical—that is, those that contribute in some real way to getting the tanker to destination on time. It has meant that standardization has almost completely supplanted formerly frequent experimentation.

"One of our concerns is availability. This wasn't too much of a problem when we only had 30 or 40 rigs. Now, no matter how good the product is, if the manufacturer can't keep it in stock locally, we can't afford to use it." Frank nods toward a row of gear boxes on the floor of the stockroom. "We have rigs waiting for these replacements. Because one manufacturer didn't keep a $10 part in stock, our whole operation suffers."

Standing at the rail of a walk leading past his second story office, Frank looked down on the row of diesel trucks being serviced immediately below us.

"We have headaches, even in a smooth-running outfit like this." Frank shook his head in token bewilderment. "Every time you turn around, there's some new piece of equipment out."

At the suggestion that maybe he should have stayed with the racing car business, Frank threw his head back and laughed in derision. "Not for me, I'm a diesel man now!"



variable-pitch fans cut power loss

Tailoring air flow to cooling needs, independent of engine speed, means more effective and evener engine cooling over the entire load/speed range with fan power requirements held to a minimum.

A growing portion of truck engine power is going to drive accessory equipment. These "power parasites" can only increase, and if you are in the business, you know that they already add up to a nice big chunk of horsepower.

With accessories and driven equipment demanding more and more of a share of the engine's power, a lot of time and thought has gone into finding and eliminating any waste work. One area that has come in for study is the engine cooling fan.

As much as 15 hp can be required by a fixed-pitch fan at vehicle speeds of 50 mph and over. And you don't spin that fan for free—it eats fuel. A good deal of the time, and this can amount to as much as 40%, the fan's cooling function is not needed. Then not only is the fan a power-parasite, but it can be over-cooling the engine causing wear and further power loss.

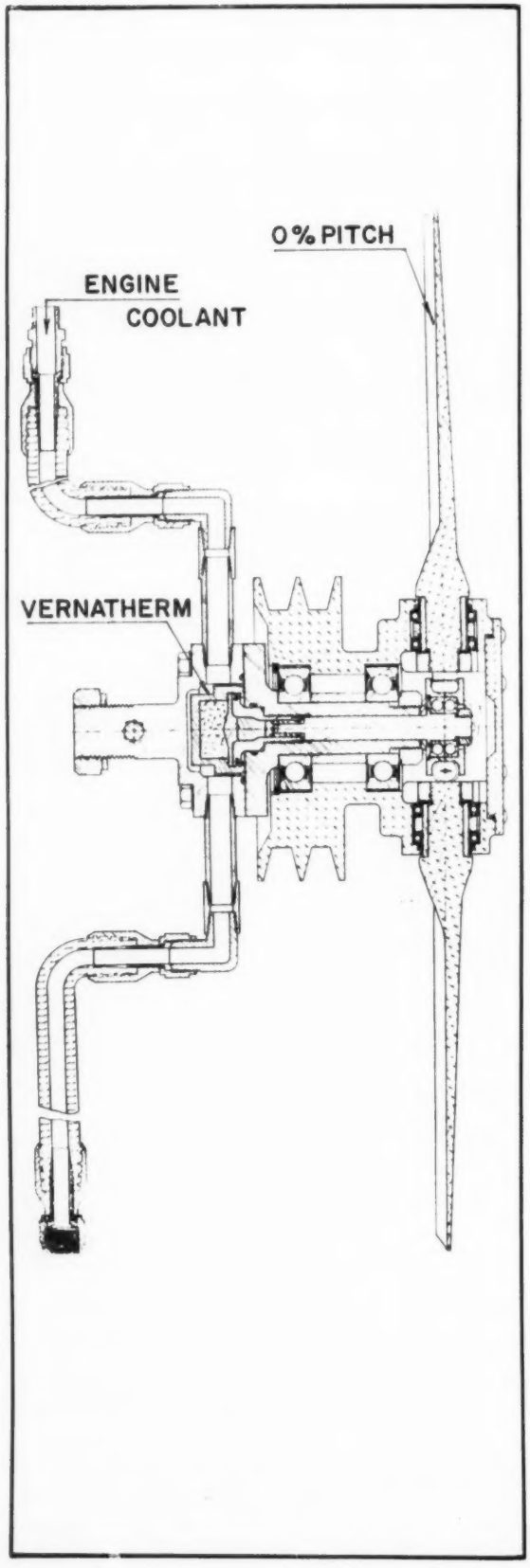
ECONOMY—mother of invention . . .

The answer would seem to lie in a controlled fan and there have been many designs to gain the inherent advantages. Ideally, such a fan should be completely variable in action to match the cooling requirements of the engine. There have been many compromise designs to provide "on-off" action, to limit maximum fan speeds while providing good cooling at low vehicle speeds, and some of the variable-pitch type to suit radiator air cooling flow to engine temperature requirements. A simple, efficient fan of the latter type is the Vari-Pitch fan made by Hilliker-Werner Company, Inc. Compact, light weight, it is of simple design and is easy to install.

Carl Werner, then a shop foreman for Scott Truck Lines in Denver, came up with the original idea. After working out the details he took it to the Hilliker brothers, operators of Scott Lines. As wide-awake truckers, they saw immediately the power saving potential of a controlled-pitch fan, its inherent effect on fuel consumption. The group formed a company and they've been busy filling orders ever since.

Bite of the blade . . .

The cross-section shows the compact and simple construction of the Vari-Pitch fan. Simplicity of design and minimum of working parts are among its strongest fea-



tures. Ease of installation, using existing mounting brackets and fan belts also makes it attractive.

In operation, engine coolant flows around a Vernatherm unit which reacts to changes in coolant temperature. As it heats it expands and actuates a piston which works to increase the bite of the fan blades. As it cools, the reverse occurs and the blade bite is decreased. Thus when cooling is not required, the blades are feathered to produce the least air flow and absorb the least power.

The Vernatherm unit, manufactured by Detroit Controls Division of American Standard, is a positive and powerful unit. The thermostatic material is a wax formulation and, as illustrated, is enclosed in a small but powerful element. Through its use a very light, compact fan unit is possible. The Vari-Pitch fan, largely built of aluminum alloys and weighing under 20 pounds, is actually lighter than the conventional fan it replaces.

As can be seen, there are no gears, clutches or complicated mechanisms inside the fan hub. Simple cam-shaped slots produce a rocker motion. Changes are made gently and only to the degree required to maintain an even cooling water temperature. Each unit is dynamically balanced at the factory.

On the road . . .

Scott Lines, of course, has given the Vari-Pitch fan long and sustained tests on the road. Take a run from Denver to Chicago by way of Central City, Nebraska and Cedar Rapids, Iowa. The truck weighed 27,475 lb going east and 33,882 lb returning to Denver. Round trip was 2600 miles and the Cummins diesel used 341.7 gallons of fuel for an average of 6.03 mpg. The average without the Vari-Pitch fan is 5.3 mpg. Scott Lines figures that one of its freight trucks burns about $1000 worth of fuel a month. Their experience shows that the fans can save up to 10% or $100 a month.

Let's look at some other examples. Red Ball Motor Freight, Inc. reports on a White 9000 powered by a Cummins NH-220. In eleven days of operation prior to installation of the Vari-Pitch fan they were getting 5.78 mpg and used 32 quarts of oil. In the eleven days of operation following installation of the fan they averaged 6.27 mpg and only 8 quarts of oil. The first run was over 2707 miles and the second over 2542 miles.

Navajo Freight Lines, Inc. has an installation on a regular run between Denver and Albuquerque averaging around four round trips per week. Since installation of the fan fuel mileage has increased from 4.6 mpg to 4.9 mpg.

What's in it for you . . .

Variable-pitch fans offer more than just improved fuel consumption. Running at optimum temperature extends engine life. You get faster warm up in cold weather and quieter overall operation because of reduced air flow and turbulence under the hood.

All of these factors lead to actual savings. Alert fleet operators are forever chipping away at costs—that's what keeps them on top. Controlled-pitch engine cooling fans offer a practical saving that can pay dividends over the life of the engine.

Blade bite from zero pitch to full pitch is controlled by the Vernatherm unit located in coolant flow from the engine. Overall design is simple, action positive.

EST. 1883

A Bearing's Best Friend

Crankshafts have been made successfully by other methods of fabrication and have proven good enough for certain non-critical applications — but for maximum dependability of the modern, compact, high-compression, high-torque, heavy-duty engine a forged crankshaft is essential.

In a crankshaft there is no substitute for a forging, and in a forging there is no substitute for Wyman-Gordon quality and experience.

WYMAN-GORDON

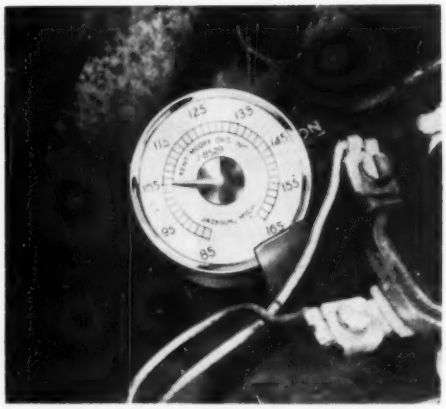
FORGING

Aluminum Magnesium Steel Titanium Beryllium Molybdenum Columbium

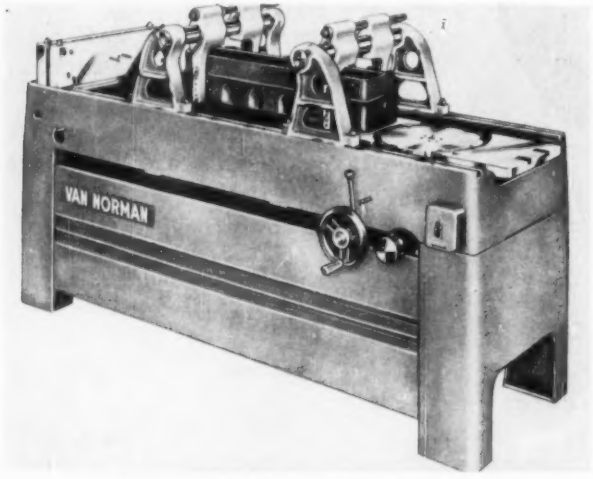
WORCESTER MASSACHUSETTS

HARVEY ILLINOIS
DETROIT MICHIGAN
GRAFTON MASSACHUSETTS
FORT WORTH TEXAS
FRANKLIN PARK ILLINOIS
LOS ANGELES CALIFORNIA

diesel power new products



Accurate reference to temperature when setting voltage regulation is the only way to insure correct adjustment. Kent-Moore has developed a new gauge that will fill an important place in the vehicular field. J 8529 Voltage Regulation Temperature Gauge sticks to the regulator magnetically, giving instantaneous temperature data while adjustment work is being done.



In a completely automatic, three-step operation Van Norman's new 570 Rotary Broach precisely resurfaces cylinder heads, engine blocks and other surfaces. Stock removal is accurately controlled. After work has been set up, the operator may leave the machine which shuts off automatically when job is completed.

Turbocharging conversion kits have been introduced by Clark Bros. Co. for majority of RA and HRA gas engine-driven compressor lines. Increases in horsepower, depending on the model, range from 32% to 50% for the RA, and from 20% to 36% for the HRA series. Model HRA-8 with turbocharger installed is shown. Full details are available from Clark.

MORE NEW PRODUCTS FOLLOW ►

Kiene Adapter for Model K-120 Compression Tester Designed for IH 817 Series Engines

Adapter 13-9A, used with Kiene's model K-120 Compression Tester, is specifically designed for testing compression on International Harvester 817 Series engines. Installation is quick and simple. Adapter is installed in the head of the engines in the same way that the injector is installed. It is clamped into the head with a crab, rocker arm goes into the top of the adapter. With the engine running at recommended speed, compression is read on the pressure gauge.

An instruction sheet is available detailing the assembly.

Hydra-Pak Oil Cooler by Perfex

This "duty-designed" cooler is engineered specifically as an oil cooler. It is available in sizes for a wide variety of applications and is of particular value where cooling water is unavailable. Designed by heat transfer engineers, the Hydra-Pak Oil Cooler is available in either motor-driven or vee-belt fan drive. It is easily adapted to your job.

Here is a unit that has been carefully tailored to solve oil heat dissipation problems. You can get the fully story from a 6-page bulletin that is excellently put together for easy reference. Use the Reader Service Card.

Sprung A Leak? Better Check on New Leakproof Nuts from Weatherhead

Whether dry seal or standard, Tef-Seal nuts from Weatherhead stop pipe-thread leaks in hydraulic and pneumatic systems. A teflon insert does the trick. A new bulletin tells the story. It includes specs, size ranges and simple installation instructions. An important feature of these Tef-Seal nuts is ease of installation in cramped quarters where wrench clearance is limited. If you've got some drippy connections better check on these nuts. Ask for additional data on the Reader Service Card.

New Black & Decker Drill Features Reversing Switch

Black & Decker's new Reversible ½-in. Special Drill has a reversing switch which will apply full power to literally back itself out of the drilled hole. This reversible feature was previously available only on heavy-duty units. The on-and-off trigger switch and the reversing switch are wired separately as a safety measure. The trigger switch must be released before the reversing switch can be actuated. If you've ever stuck a bit in the hole and wondered why someone hadn't figured out a reversing mechanism—Black & Decker has the answer with this new tool.

The unit has a drilling capacity of ½-in. in steel, ¾-in. in masonry with a special bit, 1-in. in hardwood with auger and up to 1½-in. in sheet metal with hole saws.

New Dieselized Mobile Cranes . . .

Silent Hoist all-hydraulic Krane Kar is powered by a GM 4-51 diesel. The manufacturer reports that these units are proving economical and dependable in application. They feature operation ease that permits material handling under difficult conditions such as low clearance doors, narrow aisles etc. If you're looking for diesel advantages in a mobile crane, these swing-boom Krane Kars may be just the thing. More dope is available—ask for Silent Hoist Bulletin H.

FUEL INJECTION EQUIPMENT DIVISION OF
LUCAS ELECTRICAL SERVICES, INC.

Head Office: 501 West 42nd Street, New York 36
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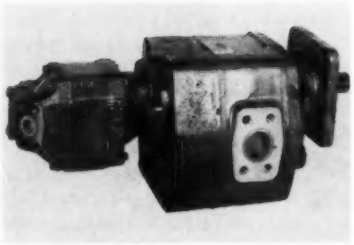
Branch Offices: 643 7th Street, San Francisco, California
4937 West Belmont Avenue, Chicago 41, Illinois
400 South Edgewood Avenue, Jacksonville, Florida
Canadian Distributors:
Joseph Lucas (Canada) Ltd., *Head Office:* 11 Davies Avenue, Toronto 8, Ontario
Branch Office: 3401 St. Antoine Street, Montreal 30, Quebec

AP929

Hupp Comes Up With Tandem Hydraulic Pump for Heavy Equipment

Hupp Aviation Company has introduced a Hydroid gear pump design incorporating two hydraulic pumps on a common shaft. Unit will be used first in construction machinery where larger pump will power scraper or dozer blades, and smaller unit, power steering. Future applications cover broad field: cranes, tractor-shovels, large farm tractors, and off-highway vehicles with hydraulically-powered accessories.

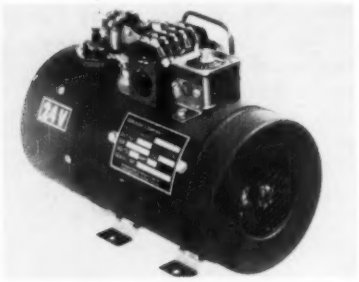


Specs on production model show large-pump rating of 60 gpm at 1800 rpm and zero pressure, with 56 gpm flow at 1800 rpm and 1500 psi. Small pump is rated 18 gpm at 1800 rpm and zero pressure and 16 gpm at 1800 rpm and 1500 psi. Current applications operate at 1800 rpm because of existing PTO gearing. Hydroid gear design permits speeds above 4000 rpm and flows of 250 gpm in larger pumps.

Hupp gear pump should find wide application throughout diesel-powered industries. More information can be had through the Reader Service Department.

Forced Air Heater Introduced by Benmar

A compact, 15,000 btu/hr multi-fuel heater has been introduced by Benmar. Dimensions are 5½ by 10⅜ by 8⅜-in. It looks like a hot



cold-weather item for use in vehicles and shelters. Also has capability as a pre-engine heater. It can be installed easily in any position and weighs only 10 lbs. New unit is said to work efficiently on all common liquid fuels and can be equipped for either manual or thermostatic control. Want more info? Use the Reader Service Card.

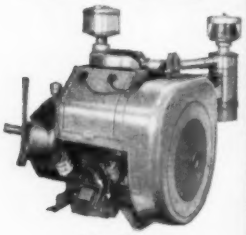
Remote-Control Fuel Tank Selector

A new fuel tank selector valve, billed as "economical", lets the driver switch from one tank to another by a dashboard control. Anderson Brass Company says that the valve utilizes a simple, positive mechanical action that assures port actuation at all times. No draining or pumping from one tank to another. Valve pairs can be used with three of four tanks involved.

Anderson points out that the valve has been thoroughly tested and is being specified as original equipment. It is suitable for systems developing from 20 in. Hg (vacuum) to 15 psig and is easily adaptable to recirculating fuel tank systems. More information? Use the Reader Service card.

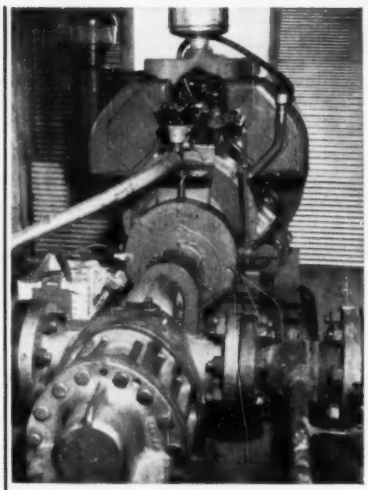
ROCKFORD

ROCKFORD Gear Reduction Assembly



Helps Wisconsin Engines Drive Pumps, — Avoid — Shut Downs

ROCKFORD Speed Reducers incorporate a clutch, power take-off and reduction gear in one complete unit. This combination insures reliability under the most extreme conditions.



Here is one of the 56 HP Wisconsin VR4D engines powering a rotary pump in a pipeline operation near Harrisburg, Nebraska. It was 35 degrees below zero when this picture was taken and summer temperatures hit 120 degrees above zero in the "dog house" enclosure. This engine and all the other VR4D's in the system must operate continuously throughout the winter because of the quick "set-up" of the heavy crude oil. One shutdown could eliminate the discharge flow through the entire system until the next spring.

The ROCKFORD Clutch, Power Take-Off, Gear Reduction unit saves oil field operators servicing time and money.

Small Spring Loaded

Heavy Duty Spring Loaded

Automotive Spring Loaded

Heavy Duty Over Center

Power Take-Offs

Speed Reducers

SEND FOR THIS HANDY BULLETIN
Gives dimensions, capacity tables and complete specifications. Suggests typical applications.

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1301 Eighteenth Ave., Rockford, Ill., U.S.A.
Export Sales Borg-Warner International — 36 So. Wabash, Chicago 3, Ill.

CLUTCHES

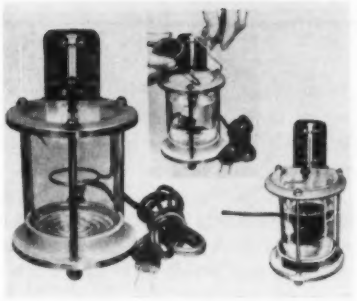
RotoPamic Air Cleaner Goes into Accelerated Production

Farr's 2-stage air filter, combining centrifugal separation with a special paper aftercleaner is well out of the product development and field testing stage. It has now been adopted as standard equipment by at least one equipment manufacturer (Eimco) and is approved under their warrantees by other engine and equipment manufacturers.

Result is that the RotoPamic is a first-priority item at Farr and is available in sizes for a wide variety of airflows. In addition to cleaning effectiveness, reduced maintenance requirements are reported. For more information or bulletins, ask on the Reader Service card.

Want to Check Thermostat Opening Temperatures in Vehicular Equipment?

Borroughs Tool and Equipment is offering a new, inexpensive Thermostat Tester. Device consists of a transparent glass tank with an electric heating unit at the bottom, UL approved cord, built-in thermometer. The lid has a holder for



the thermostat attached to its underside.

In use, the water is heated to a degree that opens the thermostat. Sound simple? It is, and useful. Proper thermostat operation is often critical and this tool is one that many shops will want. Fleet operators might note. Make it easy for your men to do the job right and they'll take the trouble to check. Convenience is the key with this easy-to-use unit.

New Retaining Ring Pliers

Sick of flying retaining rings? Then you'll be interested in Proto Tool Company's 12 sizes and types of retaining ring pliers. They were designed by the makers of Truarc retaining rings to handle the most commonly-used sizes and types of internal and external retaining rings.

Precision-ground and hardened tips are angled correctly to hold rings during installation or removal. Rings won't fly and are handled without distortion. External pliers will handle rings for shafts up to 4-in. diameter; internal types, bores to about 7-in.

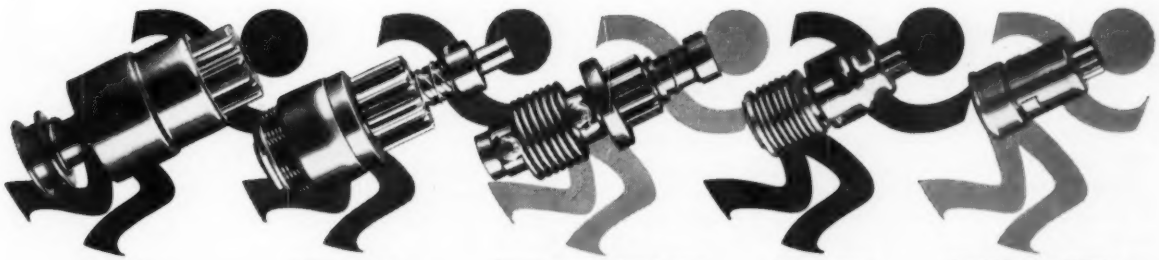
Inserts Protect Synthetic Tubing

One limitation in the use of polyvinyl chloride, polyethelene and nylon soft plastic tubing has been possibility of rupture or other damage at the fittings. Weatherhead Company has now licked this by introducing inserts, both in brass and stainless steel, that provide added strength and support in the fitting area.

These inserts are used with the Weatherhead Self-Align, Compression and Ermeto style fittings. They come in seven sizes to fit tubing from ¼-in. to 1-in. size. With them, the plastic tubings takes on new possibilities for application. They could solve a problem for you.

Only the Bendix Line-Up

OFFERS A COMPLETE CHOICE OF STARTER DRIVES



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Regardless of the size of your diesel, there's a Bendix* Starter Drive that will provide the performance, economy, and dependability you need. For "surer" starts, be sure it's Bendix. **Reg. U. S. Pat. Off.*

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Eclipse Machine Division
Elmira, N. Y.

Bendix
AVIATION CORPORATION

NEWS SECTION . . .

(*Continued from page* 17)

ADS Plans Important Denver Meeting in February

A full, informative program is scheduled for the Association of Diesel Specialists meeting to be held in Denver, Colorado, February 18-21. It will be at the Cosmopolitan Hotel. This organization continues to grow with the present roster of member firms topping the hundred mark. With this growth and ever-better organization, service to its members, including program quality, is steadily improving. This looks to be one of the best yet.

Four key technical topics are to be covered. In recognition of the importance of physical facilities to getting efficient, quality work, Henry Ortner of American Bosch will discuss "Diesel Fuel Injection Shop Layout." "Advantages of Pressure Timing" of fuel injection pumps will be discussed by another authority, William Boedecker of Robert Bosch.

Turning to engines, a Hercules spokesman will discuss their new line of engines with emphasis on their "Polydiesel" combustion chamber design and fuel injection pump application. Cooperation with manufacturers, a primary goal of ADS, is becoming a reality as the Association gains recognition as an important industry group.

Similarly, a lubrication engineer from a major producer will discuss lubricating oils and fuel oils. This, like the other topics, is solid information of value to those involved with diesels in general and fuel injection equipment and governors in particular.

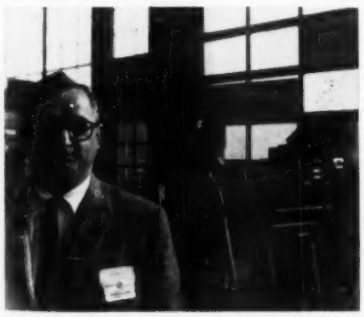
Herb Wittersheim, Diesel Injection Sales & Service, Inc., chairman of the important Standards Committee, will conduct a forum on the subject of the committee's special project "Repair Standards". This project is of prime interest to both shop and customer. As a customer, with such standards you'll know what you will get for your money and can compare jobs and prices on a uniform basis. Also, the shop has standards to work to in accordance with what the customer wants. Establishment of these standards will be an important industry service.

Those at the meeting will have opportunity to see the shop of the big Denver-Chicago Trucking Company, one of the largest fleets in the country. Such inspection trips are always interesting and idea-provoking.

Finally, there will be opportunity for these franchised firms to discuss problems, both business and technical, with top people from the manufacturers involved. All in all, such meetings are a real service to the members and through them to the customer.

Making business . . .

Last month, in checking with distributor organizations across the country we found a real trend toward "making business". Modern sales techniques, good promotion and advertising, efficient service to back it all up—this is the profile of the alert, progressive distributor in today's market.



The Edward G. Gross Corporation, formerly Coretti-Gross, Inc. is the Chrysler-Deutz distributor in the New York City area. During the week of November 30th through December 4th this organization ran an open house "Hello Neighbor" program that is representative of the kind of merchandising that makes business.

Different manufacturers participated each day. On Monday it was Leece-Neville with "The Alternator Story", and Lubriplate representatives covered "Special Lubrication". Tuesday was Chrysler-Deutz day, an event we attended as part of our coverage on this company's merchandising of their air-cooled diesels. During the rest of the week, Alemite, Marquette, Midland Ross, Purolator, Perfect Circle, Delco-Remy and Continental Motors all had their day.

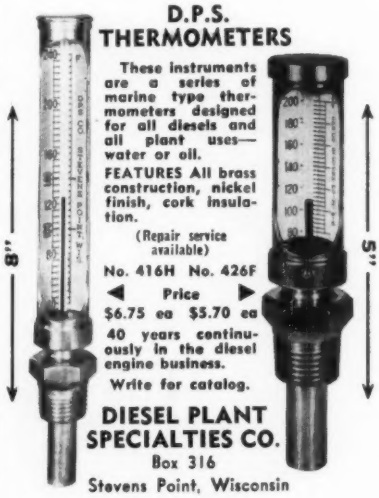
During the proceedings on Tuesday we managed to corner Ed Gross and talk about the value of this "Hello Neighbor" week to his sales program.

"Well, of course it brings people into the plant. It keeps our name in their minds when they think about where to go to purchase supplies. It shows that we are thinking of them —continually trying to improve our service," he told us.

"And we're part of the community. As you know, on each of the five days during this week we are awarding a complete master mechanic's tool set with wheeled cabinet to an outstanding automotive trades student. Each award goes to a different community in the area and is presented in behalf of an organization interested in the problem of trained personnel. Every year there is a large deficit in trained automotive specialists. These awards are aimed at improving the professional atmosphere into which students graduate."

Food for thought. Ed Gross is a sincere, intelligent business man. He knows that the problem of well-educated and trained service personnel is one that the entire industry must contend with. Through his efforts, and the continued work of others, progress in bettering the status of the mechanic can be made.

From a sales point of view, Ed Gross has gained the respect and friendship of the people he does business with. This is the essence of good public relations, and a solid foundation on which a distributor can continue to enlarge his business.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FEATURES All brass construction, nickel finish, cork insulation.
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40 years continuously in the diesel engine business.
Write for catalog.
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diesel power new literature

Detroit Diesel's Marine Line Featured in New Brochure

Here's a good rundown on Detroit Diesel's "53", "71" and "110" series engines for marine use in pleasure and work boats. This includes 34 single and multiple engines, including models for single and twin-screw installations for boats from 23-ft up.

Entitled "GM Diesel Marine Engines for Pleasure, for Profit", this well-illustrated brochure gives power ratings, dimensions and weights for the whole engine line. To get your copy, refer to symbol #8SA57.

Packaged Compressor for Field Gathering Service

Cooper-Bessemer has a new 6-page Bulletin "92" that tells the story of their DM-125 packaged compressor. This unit fills the need for small-horsepower (300-hp class), heavy-duty integral engine-compressors for field gathering service.

Features of this C-B engineered angle-compressor unit are detailed. The Climax V-125 12-cyl engine has been converted for direct compressor drive. This is done by use of C-B's master compressor rod principle with articulated power rods. This construction and crosshead and guide assembly are illustrated.

Units are manufactured by Cooper-Bessemer, skidded, prepiped and given a closed water system by their Houston subsidiary, C-B Southern, Inc. To get your copy of Bulletin "92", use the Reader Service card.

Cummins Tells of Piston Rings

Cummins has a new booklet that tells the story of the piston rings used in their engines. Functions of rings and all the quality control tests used by them to insure that rings meet specifications are detailed.

Stressing the importance of rings for proper engine operation, Cummins makes the case for using factory parts. Proper ring sets for all their engine series are listed in a table for quick reference.

You'll have greater respect for the deceptively simple piston ring after reading the booklet. To get it, use the Reader Service card.

Flexible Coupling Catalog is Valuable Reference

If you can use a good guide to flexible coupling selection and application, Thomas Flexible Coupling Company's Catalog No. 60 is for you. It's an up-to-date combination of their Catalogs 51 and 51A with added information.

Thomas Flexible's entire line—miniature couplings, standard series, extra high-speed series and special units—are listed and described. Much of the catalog is devoted to installational data with diagrams, tables and load capacities, all refered to each type and size.

Other data includes information on bore and keyway standards, dynamic balancing and a discussion of misalignment. To get your copy, use the Reader Service card.

(*Continued on page* 48)

WASTING COSTLY FUELS?

For diesels of *ALL* sizes...

POWER-PAL SAVES UP TO 10%!

With *POWER-PAL*, a *concentrated* diesel fuel conditioner, fleet owners report improved engine performance, important fuel savings up to 10%. High diesel maintenance costs drop sharply as *POWER-PAL* keeps fuel injectors clean, dissolves harmful varnishes and moisture, and reduces engine deposits. For the money-saving answer to your diesel fuel problems, choose POWER-PAL!

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Remember . . . Power-Pal is not an ordinary diesel fuel additive. It is a CONCENTRATED DIESEL FUEL CONDITIONER!

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- International Harvester Injection Testers
- General Motors Injector Testers
- Injection Pump Calibrating Stands
- Nozzle-Injector Cleaning Tools and Lapping Blocks
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- Engine Removal and Parts Dollies
- GM 71 Engine Tools

76 Pages—275 Illustrations
56 Engine Reference Tables
26 Parts Lists

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NEW HIGH SPEED ADJUSTABLE CLOSURES,
IN A WIDE VARIETY OF SIZES AND SHAPES, CUT PRODUCTION TIME AND COSTS!

Snap-Tite® or Turn-Tite®

Cam or Lever Action Test Plugs and Seals designed for high production use!

Snap-Tite types for use during processing of machine parts, tubes, molds, castings, tanks and for testing low pressure applications. *Turn-Tite* types for higher pressure applications. Also where restricted clearance prohibits cam action closure. Also types to accommodate pressure line connector. Snap-Tite and Turn-Tite also used as permanent parts of finished products.

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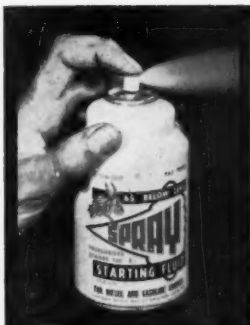

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STARTING FLUID FOR DIESEL & GASOLINE ENGINES

Get more starts, quicker starts, at lower cost with SPRAY STARTING FLUID. Both the fluid and propellent burn . . . there's no waste! Each pressurized can contains enough fluid for many starts . . . starts that will sustain combustion until a smooth running engine can take over. Our greater supply of "vapor pressure" at all temperatures, atomized at a high initial rate, shortens cranking and warm up time, reduces dilution, prevents electrical and starting system wear, saves wasted man hours and equipment down-time. SPRAY is atomized for safe application and quantity control . . . use only as much as the engine requires. Field-proven SPRAY STARTING FLUID will start the toughest engine down to 65° below zero . . . but for year 'round economy start engines every day with SPRAY! Sold through automotive jobbers everywhere.

Ask about INSTNSTART closed system starting.

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DIESEL ENGINE GENERATOR SETS

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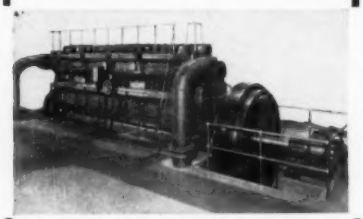

Any voltage; 50 or 60 cycle. Available in stationary, mobile or portable model. Following listing is only partial.

1420 kva Fairbanks-Morse model 38D-8 1/8 (photo above)
1375 kva General Motors model 278A
1250 kva General Motors model 567
938 kva General Motors model 567
625 kva General Motors model 278A
625 kva American Locomotive Co. model 539
412 kva Worthington model CC
375 kva General Motors model 268A
312 kva General Motors model 268A
250 kva General Motors model 268A

A. G. SCHOONMAKER Company, Inc.

Foot of Spring St., Sausalito, Calif.
EDgewater 2-1490
50 Church St., New York 7, N. Y.
DIgby 9-4351

NEW LITERATURE . . .

(*Continued from page* 47)

Features of Marine Tractors

Harbormaster marine tractors have all the utility on water that the crawler has on land. They are the outboard motor of industry with all the flexibility and utility of the popular outboard. Murray & Tregurtha spells this out in a brochure, telling how they solve tough marine power and steering problems.

Several models are produced, ranging in power from 40 to 500 hp. Easily installed, efficient and economical to operate, they offer operational advantages such as full-power steering in any direction and drive protection in shallow waters. These completely self-contained units are the answer to many problems, perhaps one of yours. Get the full story by using the Reader Service card.

Booklet on Nondestructive Tests

Magnaflux Corporation lists and describes all their methods of nondestructive testing in a new booklet. With today's emphasis on costs, testing to locate cracks, flaws, inclusions, etc. before putting a material or product to work cuts cost and improves reliability. Techniques apply during maintenance work as well as in manufacturing.

Some processes listed include Magnaflux and Magnaglo; Zyglo and Zyglo-Pentrex; Magnatest; Sonizon; Stresscoat; and Spotcheck. Application of each is discussed and typical uses are illustrated.

If you are looking to cut costs, keep equipment operating through effective nondestructive testing, you'll want this booklet.

Data on Bonded-Rubber Products for Vibration, Shock, Noise Control

Dynafacts, Vol. 3, No. 2, published by the Lord Manufacturing Company, tells about flexible engine suspensions and types of elastomeric mountings used. Data on types of engine unbalance and compensating mounting systems is presented in detail. Other ideas for use of elastomeric mountings to isolate vibration and shock are also given.

Lord's publication also lists technical literature available, two of in-

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terest being Bulletin 205, Flexible Couplings, and Bulletin 712, Center Bonded Mountings, used for flexible support of mobile, transport-mounted and portable equipment.

Designers of engine-powered equipment and those engaged in repowering installations should find these clearly-written and informative bulletins very helpful.

Data on Pyrometer for Moderate Temperatures

Alnor's portable indicating pyrometer has been introduced in a new version primarily intended to measure temperatures between —40°F and 200°F. Illinois Testing Laboratories, Inc. says that as far as they know it is the only pyrometer aimed at indicating temperatures not far from normal ambients.

Two scales or arcs are arranged to provide readability to the nearest ½°F. Interchangable thermo-couples provide versatility to measure various low-temperature liquids and gases. Added to the standard high-temperature exhaust pyrometers, this type 2300-B provides capability of monitoring other engine systems.

Full details are given in Bulletin 2146-C. Get your copy by using the Reader Service card.

Rust and Corrosion Control with Color

If you've got any rust or corrosion problems—and who hasn't—here's a 38-page treatise on the subject. Rust-Oleum Corporation says it was over one year in production and it looks it. It tells of their new Color Horizons System.

It tells how to obtain rust and corrosion control through protective coatings while also providing lasting beauty. The system of specially-formulated primers and colorful top coatings involve 67 colors.

Other systems described include their water-resistant system; heat-resistant system; floor-coating system; chemical-resistant system; and a new speedy-dry system. A special technical section gives information on surface preparation, application techniques, methods of estimating required gallonage, mixing, thinning and drying information.

You'll want this for your files. Ask for Form Number 259 on the Reader Service card.

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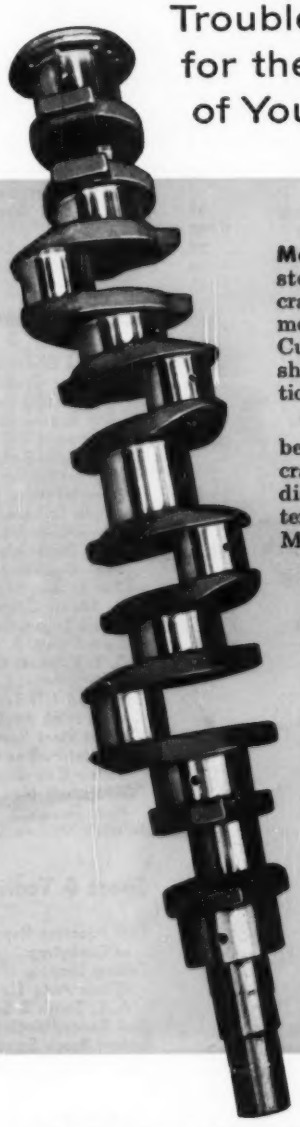

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Schwanhausser Retires from Worthington Corporation

Edwin J. Schwanhausser has retired as vice chairman of the Worthington Corp. ending a 44 year career. He will continue as a director and consultant to the firm.

Mr. Schwanhausser began as an engineer in 1915, became manager of the Buffalo plant in 1929. Elected a vice president in 1939, he became vice president in charge of sales in 1944. In 1949 he was elected executive vice president and president in 1954. He has been vice chairman since 1957.

K. M. Koch

G. J. Flannery

Advancements at Rockwell-Standard

In line with company policy to promote from within, the announcement of two advancements at Rockwell-Standard's Transmission and Axle Division moves Kenneth M. Koch and Gerard J. Flannery into new posts.

Mr. Koch is now director of engineering and Mr. Flannery is service parts manager. Mr. Koch will direct all engineering activities at the division's six plants. Mr. Flannery will direct the service parts department working closely with customers and the division's plants providing maximum availability of information and replacement parts to the user.

Appointments . . .

● Fred M. Erichson Company is the new representative in New Orleans, La. for Amot Controls Corporation.

● Northeast U. S. representative for Oxy-Catalyst, Inc. is J. H. McLoughlin. New appointment adds Vermont, New Hampshire and Maine to Mr. McLoughlin's upper New York State territory.

● Weatherhead Company has appointed John R. Wierdsma sales manager of their export division. He will supervise foreign sales in all product lines except in Canada.

● Canadian Lister-Blackstone has a new and exclusive Marine distributor for British Columbia. The Gillen and Pike Ltd. organization is located in Vancouver, B. C.

Expansion . . .

● Hercules Motors, in line with announced plans to strengthen its distributor organization has appointed Franconi Auto Parts, northeastern Pennsylvania distributor.

● Perfect Circle Corporation has plans for a new $3-million foundry near Rushville, Indiana. This will replace the present foundry with three times current capacity.

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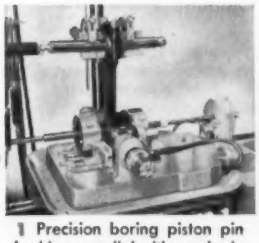
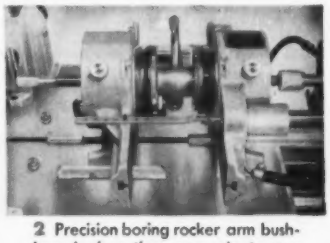


1 Precision boring piston pin bushing parallel with crank pin bore, to specified center-to-center dimension.



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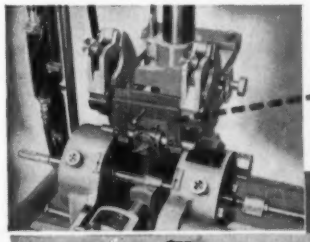

3 Precision boring cam lever bushings, parallel with roller shaft to specified center-to-center dimension, with Vernier Scale Control.

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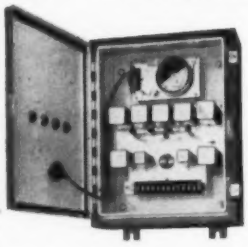

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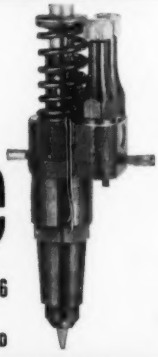

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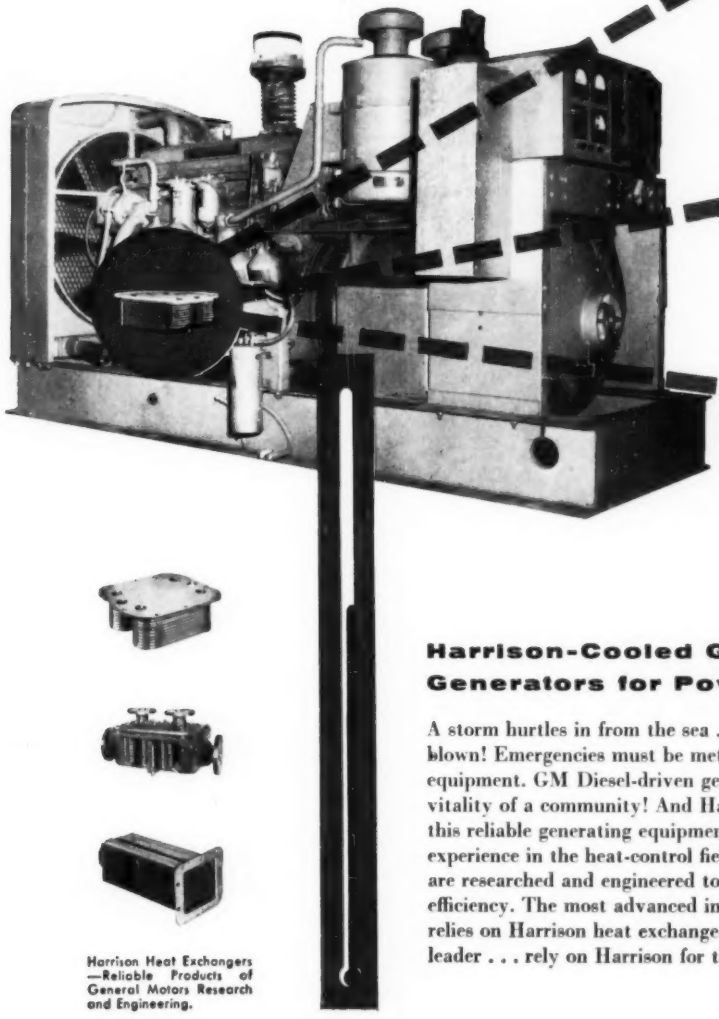

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